SuperStack® 3
Webcache
User Guide

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SuperStack 3 Webcache 3000 3C16116
SuperStack 3 Web Site Filter 3C16118

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ABOUT THIS GUIDE

This guide provides all the information you need to install and use a SuperStack® 3 Webcache 1000/3000. It also describes the features of the Webcache and outlines how to use those features to optimize the performance of the Webcache.

This guide is intended for the system or network administrator who is responsible for installing, configuring and managing the network. It assumes a basic working knowledge of local area network (LAN) and wide area network (WAN) operations.

If release notes are shipped with your product and the information there differs from the information in this guide, follow the instructions in the release notes.

Most user guides and release notes are available in Adobe Acrobat Reader Portable Document Format (PDF) or HTML on the 3Com World Wide Web site:

`http://www.3com.com/`

Conventions

Table 1 and Table 2 list conventions that are used throughout this guide.

Table 1 Notice Icons

Icon	Notice Type	Description
ℹ	Information note	Information that describes important features or instructions
⚠	Caution	Information that alerts you to potential loss of data or potential damage to an application, system, or device
⚡	Warning	Information that alerts you to potential personal injury

Table 2 Text Conventions

Convention	Description
`Screen displays`	This typeface represents information as it appears on the screen.
`Syntax`	The word "syntax" means that you must evaluate the syntax provided and then supply the appropriate values for the placeholders that appear in angle brackets. Example: To change your password, use the following syntax: `system password <password>` In this example, you must supply a password for `<password>`.
`Commands`	The word "command" means that you must enter the command exactly as shown and then press Return or Enter. Commands appear in bold. Example: To reboot the Webcache, enter the following command: **`system control reboot`**
The words "enter" and "type"	When you see the word "enter" in this guide, you must type something, and then press Return or Enter. Do not press Return or Enter when an instruction simply says "type."
Keyboard key names	If you must press two or more keys simultaneously, the key names are linked with a plus sign (+). Example: Press Ctrl+Alt+Del

(continued)

Table 2 Text Conventions (continued)

Convention	Description
Words in *italics*	Italics are used to: ■ Emphasize a point. ■ Denote a new term at the place where it is defined in the text. ■ Identify menu names, menu commands, and software button names. Examples: From the *Help* menu, select *Contents*. Click *OK*.

Related Documentation

In addition to this Guide, the Webcache 1000/3000 documentation set includes the following documents:

- *Webcache 1000/3000 Online Help*

  This online help system contains information about the Web interface operations that enable you to manage the Webcache. It contains an explanation for each operation and the available parameters. You can access it by clicking *Help* on any of the Web interface screens or by clicking the *Online Help* button in the Help View.

- *Webcache 1000/3000 Release Notes*

  These notes provide information about the current software release, including new features, modifications, and known problems.

There are other publications you may find useful, such as:

- Documentation accompanying 3Com Network Supervisor. This is supplied on the CD-ROM that accompanies the Webcache.
- Documentation accompanying switches capable of Layer 4 redirection (for example the SuperStack 3 Switch 4400), and other devices that can be used with the Webcache (for example the SuperStack 3 Firewall and SuperStack 3 Server Load Balancer).

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Example:

- SuperStack 3 Webcache 1000/3000 User Guide
- Part number: DUA1611-5AAA04
- Page 25

Please note that we can only respond to comments and questions about 3Com product documentation at this e-mail address. Questions related to technical support or sales should be directed in the first instance to your network supplier.

Product Registration

You can now register your SuperStack 3 Webcache on the 3Com Web site:

`http://www.3com.com/register/`

Registering your Webcache:

- Provides access to the latest Webcache software (at time of registration).
- Activates the warranty. See the warranty flyer supplied with your Webcache for details.
- Allows you to activate the 30 day free trial of the Webcache Web Site Filtering service. See "3Com Web Site Filter" on page 147.

I GETTING STARTED

1 WEB CACHING CONCEPTS AND DEPLOYMENT

This chapter contains information about the concepts of web caching and the ways in which you can deploy the Webcache within your network. It covers the following topics:

What is the Webcache?

The SuperStack® 3 Webcache 1000 and 3000 are high-performance, easily configurable webcache appliances. They offer the following benefits to your network:

- **Reduced Network Traffic**

  The Webcache locally stores frequently accessed Web content and quickly serves it to the end user on demand. This reduces the amount of traffic on the WAN, providing significant cost benefits by reducing the bandwidth requirement on expensive WAN links.

- **Reduced Web Latency**

  The end user receives Web content more quickly and with greater quality of service if it is served from a local, high-speed Webcache than if it is served from the Internet. Web object requests that have to travel over long distances are limited to the speed and capacity of the slowest link in the path. A Webcache that is closer to the client machines reduces the potential for slow links and dropped data packets.

- **Smoother Traffic Flow**

  Traffic surges can stress your network and server. The Webcache can help smooth out network traffic and reduce delays in serving Web content. As more users request the same Web content, it becomes more likely that the content will be stored in the Webcache, and in turn the Webcache becomes more effective at eliminating upstream traffic.

- **Controlled Web Access**

  The Webcache allows you to control which client machines in your network can access the Internet, and which Web sites can be accessed. Access Logs show you who has used the Internet and where they have been.

The Webcache and 3Com Network Supervisor

The latest version of 3Com Network Supervisor is supplied on the CD-ROM that accompanies the Webcache. 3Com Network Supervisor provides powerful, intuitive network management for small to medium enterprise networks. It automatically discovers network devices and reports network activity, stress monitoring and performance metrics for network managers. This information helps to provide the most efficient, cost-effective use of network resources.

3Com Network Supervisor offers the following support:

- If your 3Com Network Supervisor management station is located on the LAN, it discovers the Webcache automatically and displays it on the topology map.
- The topology map indicates that the Webcache is a 3Com Webcache and uses a caching icon to represent it.
- Double-clicking on the caching icon launches the Web interface of the Webcache.
- 3Com Network Supervisor performs health checks on the Webcache by requesting a factory-defined URL from the Webcache. This ensures that Web traffic is not directed to a Webcache that is not currently operating.
- 3Com Network Supervisor detects if the Webcache is directly connected to a 3Com device capable of Layer 4 redirection (for example the SuperStack 3 Switch 4400) and offers to automatically configure both devices for transparent cache deployment. 3Com Network Supervisor also detects mis-configurations of the Webcache and Switch, for example if a Switch 4400 is not directly connected to the Webcache.

Before You Begin

To install the Webcache and set it up for management, you must understand and correctly configure it with the following information. Ensure that you have this information ready before you begin to install the Webcache.

- **An IP address** — for further information, see “IP Addresses” on page 26.
- **A subnet mask** — for further information, see “Subnets and Using a Subnet Mask” on page 27.
- **A default router address** — for further information, see “Default Router” on page 29.
- **One or more Domain Name System (DNS) server addresses** — for further information, see “Domain Name System” on page 28.
- **A Host Name** — The Host Name is combined with the **Domain Name** to give the internet (DNS) name of the Webcache. The host name is the name of the Webcache within the local domain.
- **A Domain Name** — The Domain Name is combined with the **Host Name** to give the internet (DNS) name of the Webcache. The domain

is a grouping of computers with related properties. For example you might group all computers in your company in the domain `mycompany.com`.

Example

The internet (DNS) name `webcache.mycompany.com` is formed by combining the Host Name `webcache` with the DNS domain `mycompany.com`.

- **One or more Network Time Protocol (NTP) server addresses** — for further information, see the "System Time" chapter on page 131. This is optional as you can choose to enter the system time manually instead of using the Network Time Protocol.
- **A Caching Deployment Mode** — for further information, see "Deployment Modes Overview" on page 32.
- **Caching Port Numbers** — The Caching Port Numbers are the ports on which the Webcache will listen for traffic. The default number is 8080 for Proxy Cache mode and 80 for Transparent and Inline Cache modes.

Network Configuration Concepts

The following sections explain certain key concepts of configuring your network, which you must understand in order to set up the Webcache successfully.

IP Addresses

To operate correctly, each device on your network (for example a webcache or management station) must have a unique IP address. IP addresses have the format *nnn.nnn.nnn.nnn* where *n* is a decimal number between 0 and 255. An example IP address is '192.168.100.8' with a subnet mask of 255.255.255.0.

The IP address can be split into two parts:

- The first part ('192.168.100' in the example) identifies the network on which the device resides.
- The second part ('8' in the example) identifies the device within the network.

If your network is internal to your organization only, you may use any arbitrary IP address. We suggest you use addresses in the series 192.168.100.*X* (where *X* is a number between 1 and 254) with a subnet mask of 255.255.255.0.

These suggested IP addresses are part of a group of IP addresses that have been set aside specially for use "in house" only.

***CAUTION:** If your network has a connection to the external IP network, you must apply for a registered IP address. This registration system ensures that every IP address used is unique; if you do not have a registered IP address, you may be using an identical address to someone else and your network will not operate correctly.*

Obtaining a Registered IP Address

InterNIC Registration Services is the organization responsible for supplying registered IP addresses. The following contact information is correct at time of publication:

World Wide Web site: **`http://www.internic.net`**

IP Address Rules

There are certain rules that you must follow when entering an IP address or IP address range:

- Individual IP addresses must be valid:
  - 0.0.0.0 is disallowed.
  - Values above 255.255.255.255 are disallowed.
- IP address ranges must be valid:
  - A range starting at 0.0.0.0 is disallowed.
  - A range ending above 255.255.255.255 is disallowed.
  - The second IP address in the range must be larger than the first.

Subnets and Using a Subnet Mask

You can divide your IP network into sub-networks also known as subnets. Support for subnets is important because the number of bits assigned to the device part of an IP address limits the number of devices that may be addressed on any given network. For example, a Class C address is restricted to 254 devices.

If you have a small network (less than 254 devices), you may decide not to have multiple subnets.

A subnet mask is used to divide the device part of the IP address into two further parts:

- The first part identifies the subnet number.

- The second part identifies the device on that subnet.

The bits of the subnet mask are set to 1 if the device is to treat the corresponding bit in the IP address as part of the original network number or as part of the subnet number. These bits in the mask are set to 0 if the device is to treat the bit as part of the device number.

Domain Name System

The Domain Name System (DNS) maps a numerical Internet Protocol (IP) address to a more meaningful and easy-to-remember name. When you need to access another device on your network, you enter the name of the device, instead of its IP address. A Domain Name System server on your network is contacted and asked the electronic form of the question, "What is the IP address of the destination device?". The DNS server is a machine that keeps track of all the names and their equivalent numeric IP addresses. The DNS server responds with the correct IP address (e.g. 128.118.2.23), allowing the two devices to communicate with each other.

To enable the Domain Name System, you must setup one or more DNS servers on your network. If you are uncertain about how to do this, contact your network administrator.

The following Webcache features are only available if you have setup a DNS server:

- **Caching** — The Webcache will be unable to cache Web content if a DNS server is not setup. The Webcache must resolve the host names accessed by the Web browser in order to serve the content.
- **Access to the Webcache by DNS Name** — You can access the Web interface or Command Line Interface of the Webcache via its DNS name, rather than its IP address e.g. webcache.mycompany.com.
- **Web Proxy Auto-Discovery (WPAD)** — This protocol can be used to configure Web browsers on client machines in a Proxy Cache deployment. For further information, see "Web Proxy Auto-Discovery (WPAD)" on page 49.

Domain Name System Syntax

You must use the following syntax for the DNS host name and domain name:

- **Host Name**
  - The host name must be at least 1 character long.

  - The host name must not exceed 63 characters in length.
  - The host name must be comprised of alphanumeric characters, - (hyphens) and _ (underscores).
  - You cannot enter a host name containing a space character.
- **Domain Name**
  - The domain name must be at least 1 character long.
  - Each character string can only be comprised of alphanumeric characters, - (hyphens) and _ (underscores).
  - You cannot enter a domain starting with **`http:`**.
  - You cannot enter a domain name starting or ending with a **.** (dot) character. It must start and end with a letter or number.
  - Each part of the domain name (known as a label) must be separated with a . (single dot) and must not exceed 63 characters in length.
  - You cannot enter a domain name which has two . (dots) next to each other.
  - You cannot enter a domain containing the / (forward slash) character.
  - You cannot enter a domain containing a space character.

Each part of the domain name (known as a label) must be less than 64 characters. The host name plus the domain name must not exceed 255 characters in length.

Default Router

A Router is a device on your network which is used to forward IP packets to a remote destination. An alternative name for a Router is a Gateway. "Remote" refers to a destination device that is not directly attached to the same network segment as the source device.

The source device cannot send IP packets directly to the destination device because it is in a different network segment. Instead you configure it to send the packets to a router which is attached to multiple segments.

When it receives the IP packets, the router determines the next network hop on the path to the remote destination, and sends the packets to that hop. This could either be the remote destination or another router closer towards the destination.

This hop-by-hop process continues until the IP packets reach the remote destination.

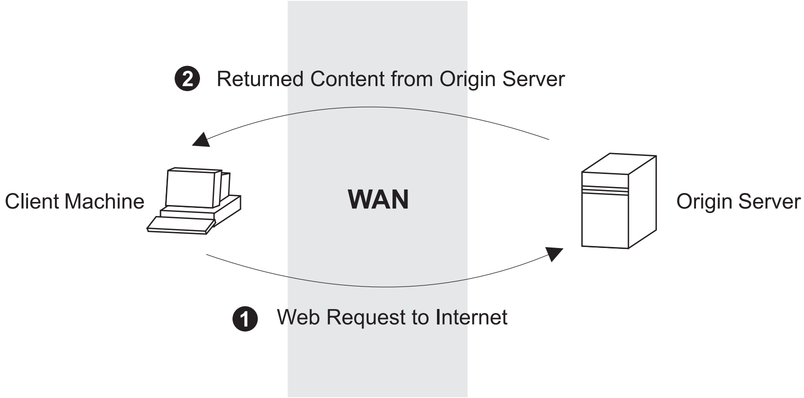
The default router should be a device that is closer than the Webcache to the WAN link in your network, which the Webcache can send Web requests to in order to retrieve Web objects from the Internet. The default router can be a firewall, internet gateway device, router or a switch.

To configure the Webcache, enter the IP address of the default router on the local subnet in which the Webcache is located. If no default router exists on your network leave the field blank.

Web Caching Overview

In a network without a Webcache, all Web requests from browsers on client machines must travel across the expensive WAN to the origin Web server (the Web server that contains the original copy of the requested information), and the response from the server must travel back across the WAN, as shown in Figure 1:

Figure 1 A Typical Web Request


2 Returned Content from Origin Server
Client Machine
WAN
Origin Server
1 Web Request to Internet

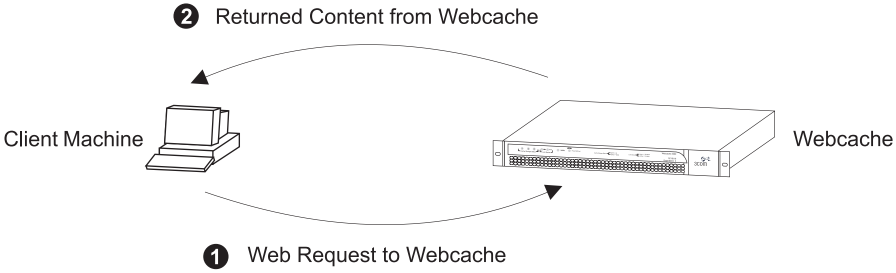
The prime objective of web caching is to store Web content close to the client machines that request it. This enables the content to be served more quickly to the end user and reduces the amount of traffic on the WAN. To achieve this aim, the Webcache is deployed in your LAN between the client machines and the origin Web servers. The Webcache then intercepts and serves requests from the client machines for Web content in the following way:

1 A URL is entered into a Web browser by a user on a client machine in your network.

2 The Webcache receives the request for the URL from the client machine and checks its cache for the requested content.

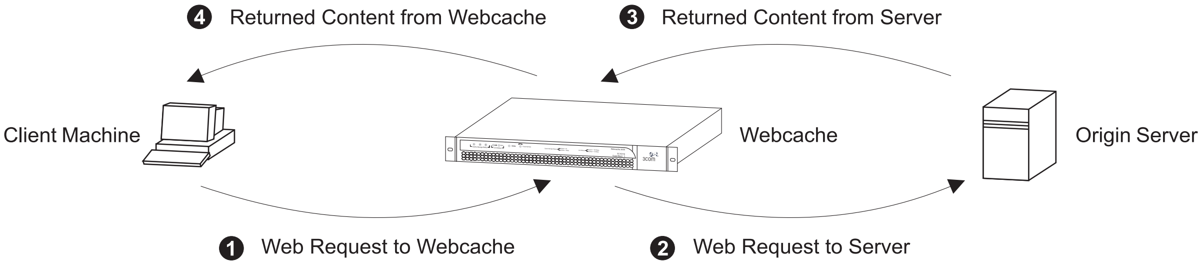
3 If the content is already in the cache and is current enough to serve (see"Current and Expired Content" on page 32), the Webcache immediately serves it to the client machine. This is a *cache hit*, as shown in Figure 2.

Figure 2 A Cache Hit



4 If the content is not in the cache or the content is expired (see"Current and Expired Content" on page 32), the Webcache connects to the origin Web server and retrieves the content. This is a *cache miss*, as shown in Figure 3. The content is then simultaneously served to the client machine and stored in the cache. Subsequent requests for that content will be served directly from the Webcache.

Figure 3 A Cache Miss


4 Returned Content from Webcache
3 Returned Content from Server
Client Machine
Webcache
Origin Server
1 Web Request to Webcache
2 Web Request to Server

Current and Expired Content

Content stored in the cache can either be *current* (also known as *fresh*) or *expired* (also known as *stale*). If it is current, the content is up to date and the Webcache serves it to the client machine as a cache hit. If it is expired, the content is out of date and the Webcache connects to the origin Web server and retrieves the content.

The Webcache determines if content is expired or current differently depending on the protocol involved:

- **HTTP** — Web documents support optional author-specified expiration dates. The Webcache adheres to these expiration dates; otherwise it uses advanced heuristics to pick an expiration date based on how frequently the document is changing. In addition, documents can be revalidated, where the Webcache checks with the origin server to find out if a document is still current.
- **FTP** — FTP documents stay in the cache for 72 hours.

Revalidating HTTP Content

If HTTP content in the cache is expired, the Webcache revalidates it. A revalidation is a query to the origin server that asks if the content is unchanged. The result of a revalidation can be:

- The content is still current; the Webcache resets its limit and serves the content.
- A current copy of the content is available; the Webcache caches the current content, replacing the expired copy, and serves the content to the user simultaneously.
- The content no longer exists on the origin server; the Webcache does not serve the cached copy.
- The origin server does not respond to the revalidation query. The Webcache serves the expired content.

Deployment Modes Overview

To operate successfully the Webcache must be able to intercept and control client machine requests for Web content before those requests reach the WAN. You must either explicitly configure the client machines to send their requests directly to the Webcache, or use additional network devices to transparently redirect the requests. You must choose a method of directing Web requests from client machines in your network to the Webcache before you install the Webcache in your network.

The term "Web requests" refers to three types of network traffic; HTTP, HTTPS (SSL encrypted) and HTTP-FTP. The Webcache can accept all of these traffic types. In Proxy Cache mode, you should configure the Web browser on each client machine to use the Webcache as the server for each of these protocols.

HTTPS (SSL encrypted) traffic is only passed through by the Webcache; it is not decoded or cached.

There are four deployment methods that you can choose from:

- **Transparent caching** — the Web browser on each client machine does not have to be configured and is unaware that it is communicating with the Webcache. Web requests are intercepted by a device in your network and redirected to the Webcache.
- **Proxy Relay caching** — the Webcache is connected directly to a SuperStack 3 Firewall, which acts as a Proxy Forwarder. Web requests are intercepted by the Firewall and the Web browser on each client machine does not have to be configured.
- **Proxy caching** — the Web browser on each client machine must be explicitly configured to send requests directly to the Webcache.
- **Inline caching** — the Webcache is connected directly to a switch in your LAN and a WAN gateway. The software built into the Webcache essentially provides a Transparent caching solution. Therefore the Web browser on each client machine does not have to be configured.

3Com recommends that you deploy your Webcache on the LAN side of a firewall, or on the SuperStack 3 Firewall's DMZ port as described in "Proxy Relay Deployment" *on* page 44.

There are various configuration solutions for Transparent and Proxy caching which are summarized in Table 3.

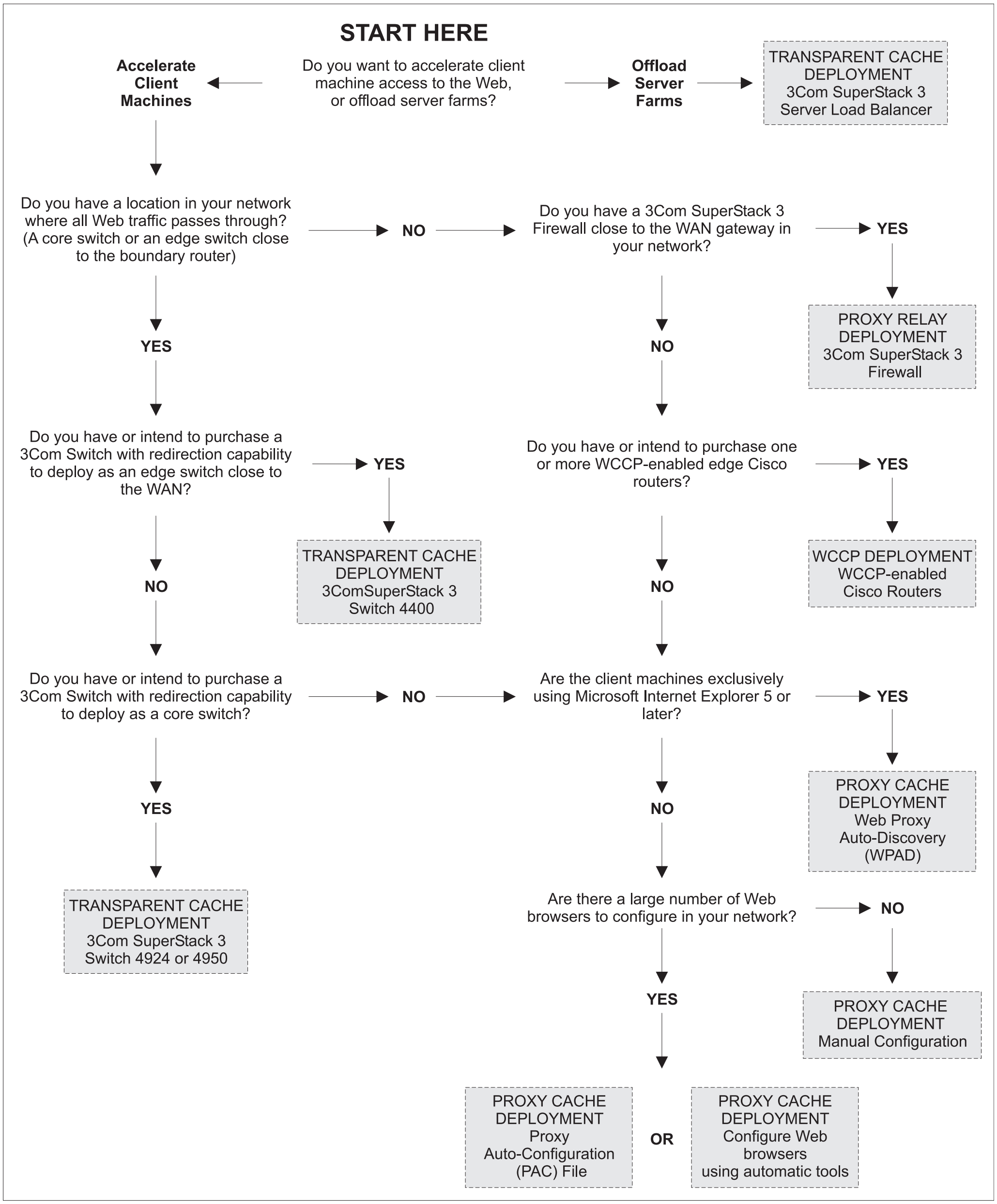
Table 3 Summary of Deployment Modes

Transparent caching		
Transparent Cache Deployment	*An overview of the Transparent cache deployment mode.*	*See* page 36
Layer 4 redirecting switch.	The Webcache is connected to a Layer 4 redirecting switch, for example the SuperStack 3 Switch 4400.	See page 38
SuperStack 3 Server Load Balancer	The Webcache is connected to a SuperStack 3 Server Load Balancer to improve the scaling and performance of a group of Web servers.	See page 40
WCCP Router	The Webcache is connected to one or more WCCP-enabled Cisco routers.	See page 41
Proxy Relay caching		
Proxy Relay Deployment	*An overview of the Proxy Relay deployment mode.*	*See* page 44
Proxy caching		
Proxy Cache Deployment	*An overview of the Proxy cache deployment mode.*	*See* page 45
Manual Configuration	The Web browser on each client machine is configured to explicitly direct its Web requests to the Webcache.	See page 47
PAC Files	A Proxy Auto Configuration (PAC) file is used to configure the Web browser on each client machine. PAC files allow you to create configuration rules that determine how the Web browser operates.	See page 48
Web Proxy Auto-Discovery (WPAD)	The Webcache and Microsoft Internet Explorer 5 (and later versions) support the WPAD protocol. This protocol enables the Web browser on client machines to automatically find and load proxy configuration information (stored in a PAC file) from a server on your network without user intervention.	See page 49
Third-Party Applications	There are applications from many vendors that can help you to manage networks of client machines.	See page 52
Inline caching		
Inline Cache Deployment	*An overview of the Inline cache deployment mode.*	*See* page 52

Choosing a Deployment Mode

The flow chart shown in Figure 4 is a guide to choosing the most suitable deployment mode for the Webcache in your network.

Figure 4 Choosing a Deployment Mode


START HERE
Do you want to accelerate client machine access to the Web, or offload server farms?
Accelerate Client Machines
Offload Server Farms
TRANSPARENT CACHE DEPLOYMENT 3Com SuperStack 3 Server Load Balancer
Do you have a location in your network where all Web traffic passes through? (A core switch or an edge switch close to the boundary router)
NO
Do you have a 3Com SuperStack 3 Firewall close to the WAN gateway in your network?
YES
PROXY RELAY DEPLOYMENT 3Com SuperStack 3 Firewall
YES
NO
Do you have or intend to purchase a 3Com Switch with redirection capability to deploy as an edge switch close to the WAN?
YES
TRANSPARENT CACHE DEPLOYMENT 3ComSuperStack 3 Switch 4400
Do you have or intend to purchase one or more WCCP-enabled edge Cisco routers?
YES
WCCP DEPLOYMENT WCCP-enabled Cisco Routers
NO
NO
Do you have or intend to purchase a 3Com Switch with redirection capability to deploy as a core switch?
NO
Are the client machines exclusively using Microsoft Internet Explorer 5 or later?
YES
PROXY CACHE DEPLOYMENT Web Proxy Auto-Discovery (WPAD)
YES
NO
TRANSPARENT CACHE DEPLOYMENT 3Com SuperStack 3 Switch 4924 or 4950
Are there a large number of Web browsers to configure in your network?
NO
PROXY CACHE DEPLOYMENT Manual Configuration
YES
PROXY CACHE DEPLOYMENT Proxy Auto-Configuration (PAC) File
OR
PROXY CACHE DEPLOYMENT Configure Web browsers using automatic tools

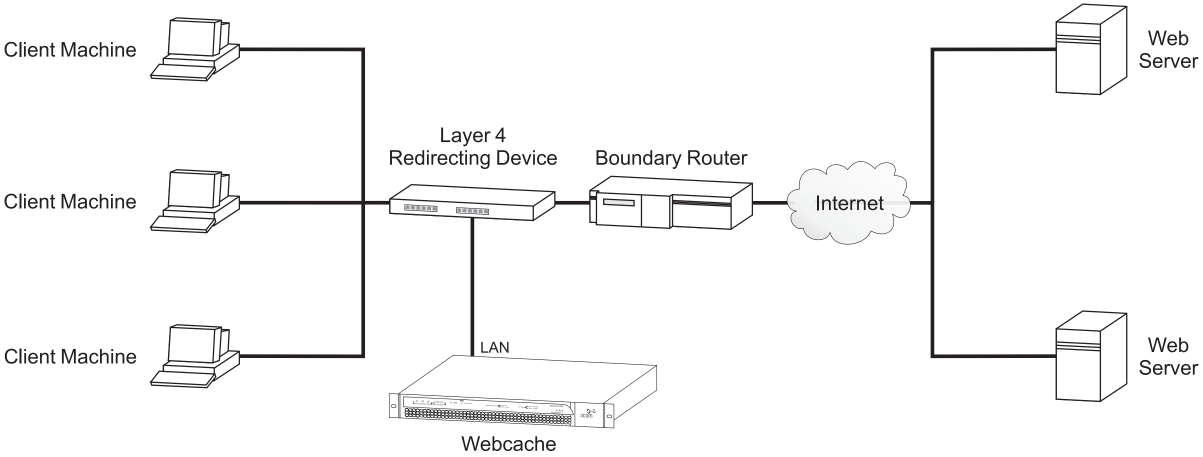
You should not configure the Webcache to operate in Transparent Cache mode unless you have a suitable redirection device in your network.

Transparent Cache Deployment

In Transparent Cache deployment the Webcache is connected to a Layer 4 device in your LAN which is capable of Redirection or a WCCP-enabled Cisco router. The Layer 4 device (also known as a Layer 4 redirector or Web-enabled device) or router automatically redirects all Web requests to the Webcache. The Web browser on each client machine is unaware that it is communicating with the Webcache. Therefore no configuration of the Web browser on each client machine is needed, which avoids configuration problems and reduces the demand on technical support.

For further information, see "Configuring Transparent Cache Mode" on page 112.

Figure 5 Transparent Cache Deployment



Suitable 3Com Layer 4 redirection devices include switches and the SuperStack 3 Server Load Balancer (refer to the documentation supplied with your switch to find out if it is capable of Layer 4 redirection).

Advantages

- You do not have to configure the Web browser on each client machine that you want to access the Webcache. Deployment of the Webcache within your network is therefore easier to achieve and manage because you only need to configure the Layer 4 Redirection device and the Webcache itself.
- If the Webcache fails and the Layer 4 device or router supports Webcache health-checks, the device will detect the failure and redirect Web requests to the WAN, ensuring that access to the Web is maintained.
- Deploying the Webcache in Transparent mode has benefits for the security of your network. It ensures that only client machines that are inside your network can access the systems and resources within it, and prevents client machines or malicious users from bypassing the Webcache. This reduces the need for more complex access controls.

Disadvantages

- You may have to add a new redirecting device to your network if it is not already available.
- The redirecting device needs to be located at a point in your network where Web traffic converges, such as a core switch, an edge switch close to the LAN, or an edge Cisco router.

Transparent Cache Solutions

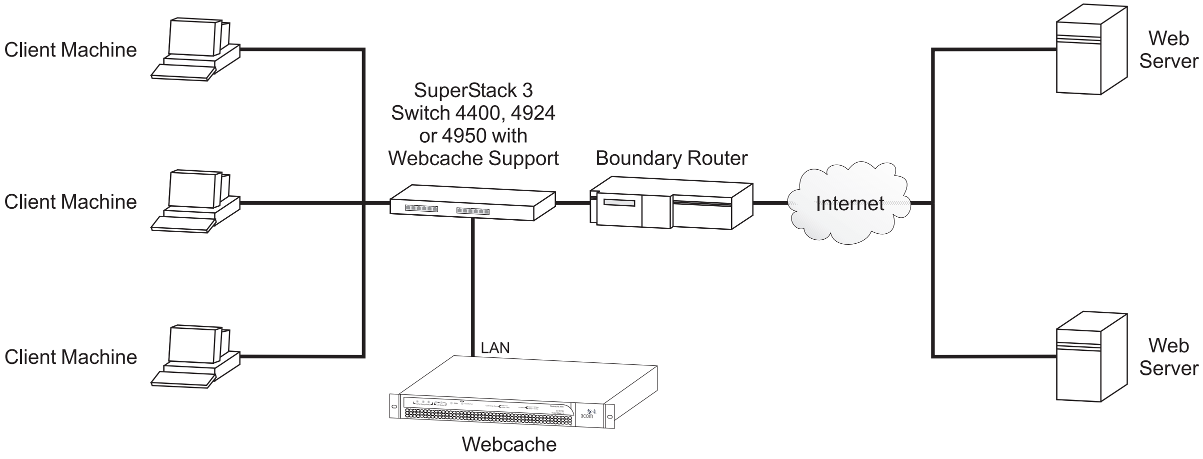
You can deploy the Webcache using the following Transparent Cache solutions:

- Deploying the SuperStack 3 Switch 4400, 4924 or 4950 with the Webcache
- Deploying the SuperStack 3 Server Load Balancer with the Webcache
- Web Cache Communication Protocol (WCCP)

Deploying the SuperStack 3 Switch 4400, 4924 or 4950 with the Webcache

The following example describes how to install the SuperStack 3 Switch 4400, Switch 4924 or Switch 4950 as a Layer 4 Redirection device. The network layout is shown in Figure 6 below.

Figure 6 Deploying the Webcache and Switch 4400, 4924 or 4950 Together



When a Webcache is added to your network the lowest numbered Switch 4400, 4924 or 4950 unit in a stack is elected as the master unit. The master unit searches its internal database to retrieve the following information about the Webcache: its IP address and status (enabled or disabled), and the TCP port on which to redirect traffic. The master unit distributes this information to the other units in the stack which update their internal databases accordingly.

The master unit designates a polling unit — this can be the master unit or another unit in the stack. The polling unit must have an IP address that is on the same subnetwork as the Webcache. If multiple units are configured in this way, then the master unit will select the first unit that responds to be the polling unit. The polling unit polls for the Webcache using the Webcache health check URL. When the polling unit receives a response from the Webcache it resolves the Webcache's IP address to a MAC address and a port and passes it to other units in the stack.

The Switch then redirects all incoming HTTP traffic on TCP port 80 to the Webcache. If the Webcache health check fails, for example because the Webcache has failed or been powered down, caching will be disabled and HTTP traffic will be directed over the WAN connection.

Important Considerations for the Switch 4400

This section contains some important considerations when deploying the Webcache with the Switch 4400 (3C17203, 3C17204).

- The Switch 4400 supports the SuperStack 3 Webcache 1000/3000.
- The Switch 4400 unit must have software version 2.02 or later installed.
- The Webcache must be connected directly to the Switch 4400 — there must be no intervening Switches or Hubs.
- The Switch 4400 can only support one Webcache for a single unit or a stack.
- On the Switch 4400 the Webcache must reside on VLAN1.
- The SuperStack 3 Webcache 1000/3000 can only receive untagged packets, therefore it must be connected to an untagged port on the Switch 4400.
- The Switch 4400 only redirects HTTP requests it recognizes in VLAN1 and sends them untagged to the Webcache.
- The traffic between any two pairs of IP addresses must always be redirected through the same Webcache.
- Only HTTP traffic is eligible for redirection.
- The port to which the Webcache is connected cannot be a member of an aggregated link.
- IP packets with IP Options set will not be redirected.

For further information about configuring the Switch 4400, refer to the documentation that accompanies the switch.

The Switch 4400SE (3C17206) cannot redirect web traffic to the Webcache unless you purchase and install the SuperStack 3 Switch 4400SE Enhanced Software Upgrade (3C17207). Contact your supplier if you need to purchase this upgrade.

Important Considerations for the Switch 4924 and 4950

This section contains some important considerations when deploying the Webcache with the Switch 4924 (3C17701) or the Switch 4950 (3C17706).

- The Switch 4924 or 4950 support the SuperStack 3 Webcache 1000/3000.

- The Webcache does not have to be directly connected to the Switch 4924 or 4950 - there can be intervening Layer 2 Switches or Hubs.
- The Switch 4924 or 4950 can only support one Webcache for a single unit.
- The Webcache can be connected to any VLAN on the Switch 4924 or 4950 if there is an IP interface associated with that VLAN.
- The SuperStack 3 Webcache 1000/3000 can only receive untagged packets, therefore it must be connected to an untagged port on the Switch 4924 or 4950.
- The Switch 4924 or 4950 redirects HTTP requests it recognizes on all VLANs and sends them untagged to the Webcache.
- The traffic between any two pairs of IP addresses must always be redirected through the same Webcache.
- Only HTTP traffic is eligible for redirection.
- The port on the Switch 4924 or 4950 to which the Webcache is connected can be a member of an aggregated link.
- IP packets with IP Options set will not be redirected.

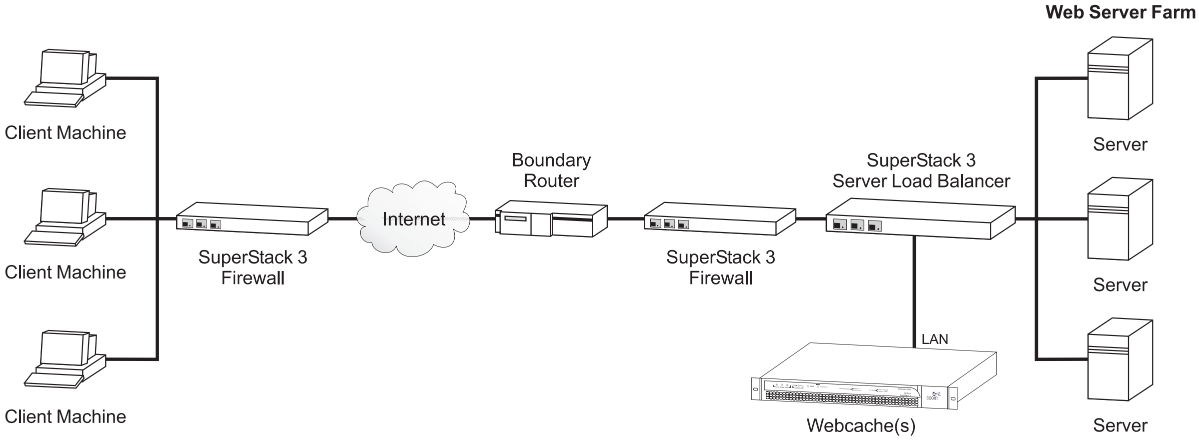
For further information about configuring the Switch 4924 and 4950, refer to the documentation that accompanies the switch.

i *The SuperStack 3 Switch 4900 and Switch 4900 SX do not support Webcache redirection.*

Deploying the SuperStack 3 Server Load Balancer with the Webcache

The following example describes how to deploy the SuperStack 3 Server Load Balancer with the Webcache. The network layout is shown in Figure 7 below.

Figure 7 Deploying the Webcache and Server Load Balancer Together



The Webcache is directly connected to a SuperStack 3 Server Load Balancer via the LAN port to improve the scaling and performance of a group of web servers. The Server Load Balancer partitions network traffic between a group of Web servers offering services to client machines. You should primarily choose this deployment mode if you want to offload traffic from Web servers to the Webcache(s).

You can attach one or more Webcaches to the Server Load Balancer and assign them to particular load balancing services provided by the Web servers. The Server Load Balancer can be configured to redirect Web requests on TCP port 80 to a Webcache for a particular service, or to load balance between multiple Webcaches based on standard load balancing algorithms.

For further information about configuring the Server Load Balancer, refer to the documentation that accompanies the device.

Web Cache Communication Protocol (WCCP)

The Web Cache Communication Protocol (WCCP) allows the Webcache to be connected to one or more WCCP-enabled Cisco routers in your network. The router automatically redirects all Web requests on TCP port 80 or FTP requests to the Webcache. Therefore no configuration of the Web browser on each client machine is needed.

There are two versions of WCCP, known as WCCP V1 and WCCP V2, which require different deployment methods. WCCP V1 allows a single

Cisco router to operate with multiple Webcaches. WCCP V2 supports multiple Cisco routers operating with multiple Webcaches in a service group.

One of the major benefits of WCCP is that there can be a Layer 3 network between the Webcache and the routers, which allows for more flexible deployment of the Webcache within your network. The Webcache and Cisco routers do not have to be directly connected to each other.

The Webcache must either:

- be connected to a switch, and the switch connected to the router running WCCP or
- be directly connected to a dedicated router interface on a 3 interface router.

Do not use a hub as the Webcache may see traffic that is not destined for it.

Configure Webcache redirection on the WAN side interfaces of the Cisco router, rather than on the LAN side interfaces of the router.

3Com recommends that you use WCCP V2 rather than WCCP V1 if possible.

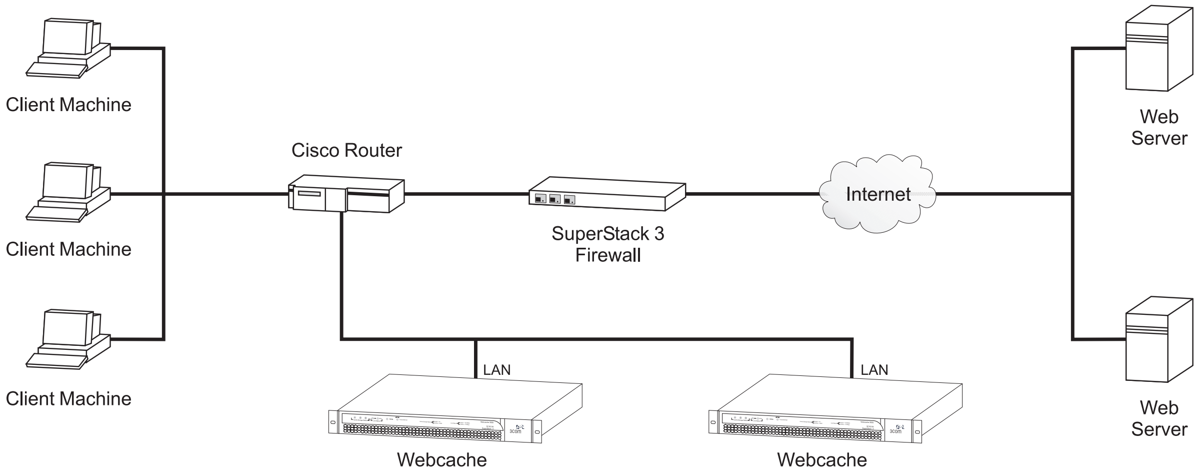
You can find further information about the Web Cache Communication Protocol at:

`http://www.cisco.com/warp/public/732/wccp/index.html`
(correct at time of publication)

For further information about configuring the Cisco routers for WCCP using the Cisco Command Line Interface, see the "Default Settings for the Webcache" appendix on page 307.

WCCP Version 1

Figure 8 WCCP Version 1 Deployment

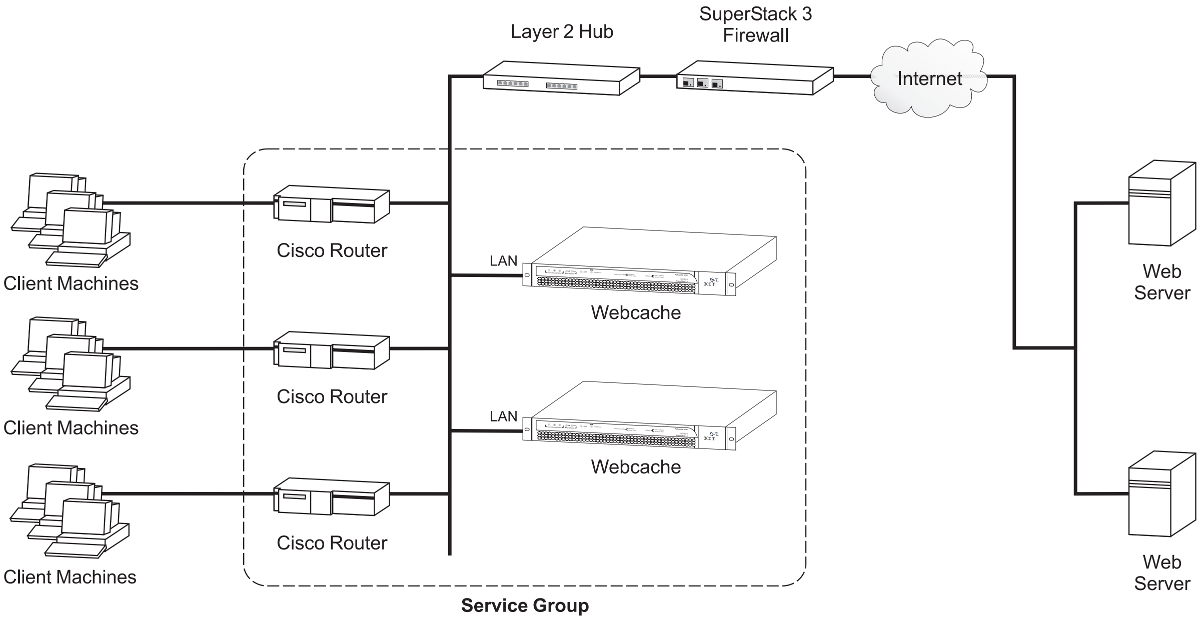


WCCP V1 allows a single WCCP-enabled Cisco router to operate with multiple Webcaches in your network. You need to specify the IP address of the router in the Web interface of each Webcache.

For further information, see "Configuring WCCP V1" on page 112.

WCCP Version 2

Figure 9 WCCP Version 2 Deployment



WCCP V2 supports multiple WCCP-enabled Cisco routers operating with multiple Webcaches in a service group. Any of the available routers in the service group can redirect Web requests to any of the available Webcaches, improving performance and redundancy within your network.

For further information, see "Configuring WCCP V2" on page 113.

Adding a New Webcache to a Service Group

There are two ways of adding a new Webcache to an existing WCCP service group. In the Web interface of each Webcache, you can choose to specify the IP address for each router or enter a single multicast IP address.

Specifying a multicast IP address allows you to quickly add a new Webcache to the service group without having to reconfigure every router and Webcache in that group. The existing Webcaches and routers will automatically configure the new Webcache into the WCCP V2 environment.

Improving the Security of Your Network

You can also enable password authentication between the routers and the Webcaches. If enabled, the Webcache provides a password when it identifies itself to the router. An incorrect password causes redirection of traffic to the Webcache to be disabled. This password system prevents a network device from receiving Web traffic for malicious purposes and inproves the security of your network.

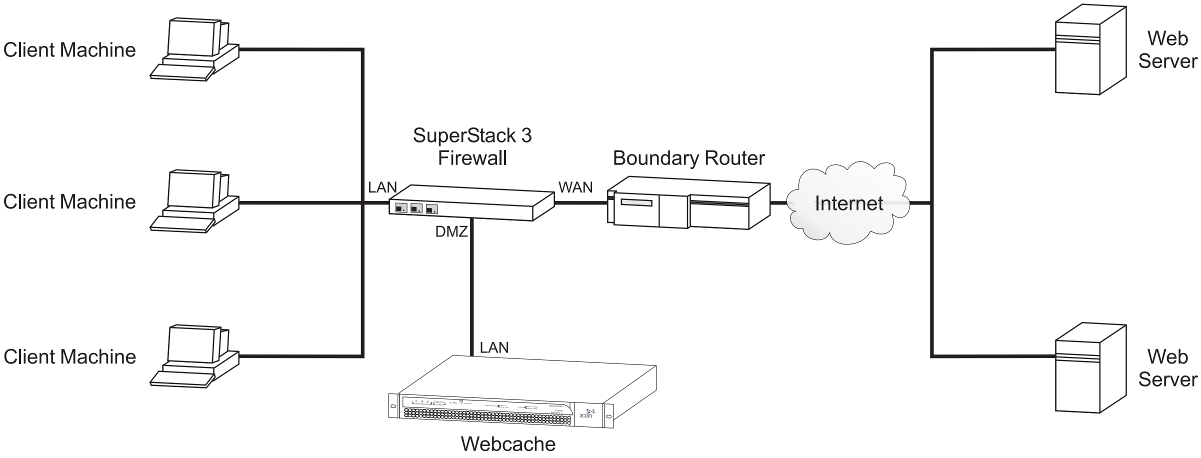
Proxy Relay Deployment

The following example describes how to deploy the Webcache with the SuperStack 3 Firewall in a Proxy Relay configuration. The network layout is shown in Figure 10 below.

Web requests from client machines are intercepted by the Firewall, rewritten as proxy requests and redirected to the Webcache. Cache hit responses from the Webcache are again rewritten by the Firewall so they appear to have come directly from the origin server.

For further information, see "Configuring Proxy Relay with the SuperStack 3 Firewall" on page 114.

Figure 10 Deploying the Firewall and Webcache Together



Advantages

- You do not have to configure the Web browser on each client machine that you want to access the Webcache because all Web requests are automatically redirected by the Firewall.

Disadvantages

- You have to add a Firewall to your network if it is not already available.

Prior to version 6.3.3 of the Firewall software:

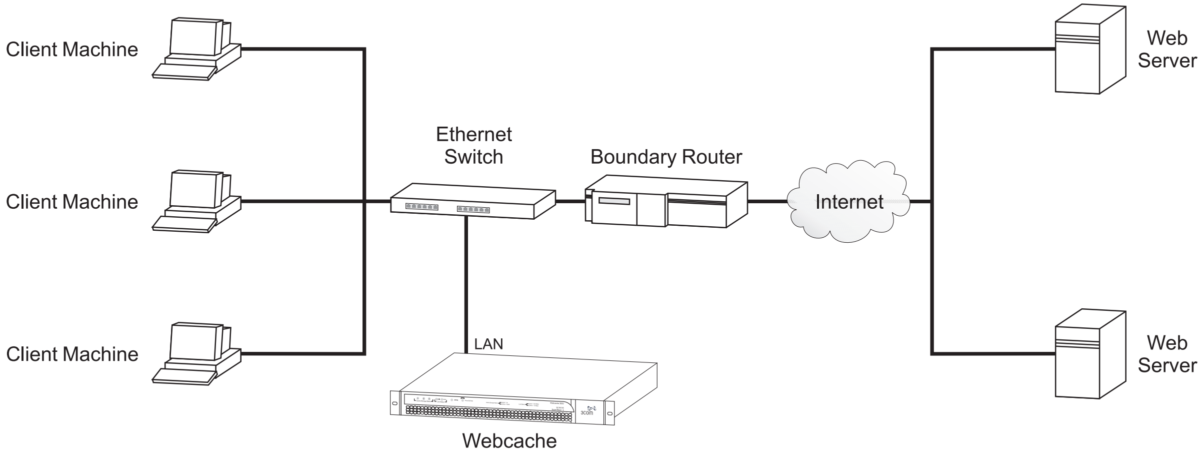
- Only one Webcache can be connected to the Firewall.
- The Firewall does not perform any health-checking to ensure that the Webcache is operational. If the Webcache fails, the Firewall continues to direct Web requests to the Webcache, causing a loss of client machine access to the Internet.

Proxy Cache Deployment

In Proxy Cache deployment the Webcache is connected to an Ethernet switch in your LAN. You must configure the Web browser on each client machine in your network to explicitly direct its Web requests to the Webcache. All Web requests are received and served by the Webcache. All non-Web traffic is sent directly to the appropriate destination.

For further information, see "Configuring Proxy Cache Mode" on page 115.

Figure 11 Proxy Cache Deployment



Advantages

- You do not have to add new devices to your network.
- The Webcache can be integrated into any network environment.
- You can use a PAC file to load balance Web requests from client machines between up to four Webcaches to achieve higher performance and resiliency. For further information, see Figure 12 on page 49.

Disadvantages

- The Web browser configuration must be changed on each client machine that you want to access the Webcache.
- If the Webcache fails, access to the Web is lost because each client machine has been configured to direct its Web requests to the Webcache.

  You can prevent this loss of access from occurring by using a PAC file:

  - If you have a single Webcache in your network, you can use the PAC file to instruct the browser to go directly to the Web if the Webcache is not available.
  - If you have more than one Webcache in your network, you can use the PAC file to load balance between up to four Webcaches. If one

Webcache fails, Web requests will automatically be sent to the other available Webcaches. For further information, see Figure 12 on page 49.

Proxy Cache Solutions

You can deploy the Webcache using the following Proxy Cache solutions:

- Manual Configuration
- Proxy Auto Configuration (PAC) Files
- Web Proxy Auto-Discovery (WPAD)
- Third-party Tools

Migrating from Proxy Cache to Transparent Cache Mode

Client machines with Web browsers that are configured to use the Webcache as a Proxy Cache (either directly or through Browser Auto-Configuration) can continue to use the Webcache as a Proxy Cache if you change the Webcache to a Transparent Cache deployment. This allows you to gradually migrate the client machines in your network from a pure Proxy Cache configuration to a pure Transparent Cache configuration, by changing the Web browsers to Transparent Cache mode as required.

Manual Configuration

You can manually configure the Web browser on each client machine to explicitly direct its Web requests to the Webcache.

To manually configure Internet Explorer 5 or 6:

1. Open Internet Explorer.
2. From the *Tools* menu, click *Internet Options*.
3. Click the *Connections* tab.
4. Click *LAN Settings*.
5. Check *Use a proxy server.*
6. Enter the URL or location of the Webcache in the *Address* field.
7. Enter a caching port number on which the Webcache is listening in the *Port* field. The default port number is `8080`.

   You can view the port numbers for the Webcache by:

   a. Logging into the Web Interface.
   b. Selecting *Device* > *Caching* > *Set Caching Mode*.

8 Click *OK*.

To manually configure Netscape Navigator 4.5 or 6:

1 Open Netscape Navigator.

2 From the *Edit* menu, click *Preferences*.

3 Click the *Advanced* category and click *Proxies*.

4 Select *Manual Proxy Configuration*.

5 Click *View*.

6 Enter the URL or location of the Webcache in the *HTTP*, *Security* and *FTP* fields.

7 Enter a caching port number on which the Webcache is listening in each *Port* field. The default port number is `8080`.

8 Click *OK*.

Proxy Auto Configuration (PAC) Files

You can use a Proxy Auto Configuration (PAC) file to configure the Web browser on each client machine. PAC files allow you to create configuration rules that determine how the Web browser operates when the Webcache is being deployed as a Proxy cache. The PAC file can be stored either on the Webcache or a network server, and the Web browser is set to read the PAC file when it is opened.

The PAC file is read once when the Web browser is first opened, and then executed within the browser for every object within every Web page visited. This can cause a perceived response time degradation, although the performance degradation is likely to be small.

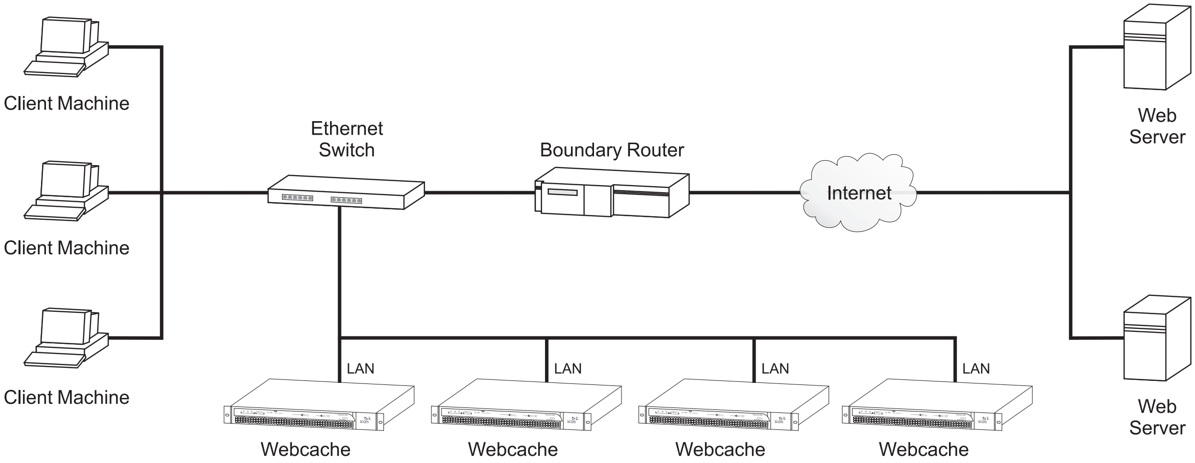
For further information, see "Creating a Proxy Auto-configuration File" on page 115.

You can only use a PAC file to configure the Web browsers on client machines when the Webcache is operating in Proxy cache mode.

PAC Files and Load Balancing

You can use a PAC file to load balance Web requests from client machines between up to four Webcaches in your network, achieving higher performance and resiliency. If one Webcache fails, Web requests will automatically be sent to the other available Webcaches.

Figure 12 Proxy Cache Deployment with PAC File Load Balancing



Web Proxy Auto-Discovery (WPAD)

The Webcache and Microsoft Internet Explorer 5 (and later versions) support the Web Proxy Auto-Discovery (WPAD) protocol. This protocol enables the Web browser on client machines to automatically find and load proxy configuration information (stored in a PAC file) without user intervention. The PAC file is located either on a server in your network or on the Webcache.

The Web Proxy Auto-Discovery (WPAD) protocol is not supported by Netscape Navigator.

Configuring WPAD

To configure WPAD you need to:

- Set up a WPAD server
- Configure your DNS server
- Configure your DHCP server (if applicable)
- Configure Internet Explorer on each client machine
- Test that WPAD is working

Setting Up a WPAD Server

You can set up a WPAD server that holds a PAC file in a suitable domain on your network or use the Webcache as a WPAD server. You can create a PAC file using the Browser Auto-Configuration wizard in the Web interface of the Webcache; for further information, see "Creating a Proxy Auto-configuration File" on page 115.

When Internet Explorer is launched it searches for a WPAD server. The Web browser adds the subdomain "wpad" to the beginning of the fully-qualified domain name and progressively removes subdomains until it either finds a WPAD server answering the domain name or reaches the third-level domain. For example, Web browsers on client machines in the `a.b.3Com.com` domain would query `wpad.a.b.3Com`, `wpad.b.3Com.com`, and then `wpad.3Com.com`. If a WPAD server is found, the Web browser downloads and executes the PAC file and configures the browser settings.

Configuring Your DNS Server

You must define your network Domain Name System (DNS) server with the appropriate use of domains in order to use WPAD. If you are using the Webcache as the WPAD server, you need to create a DNS record which resolves `wpad.your.domain.name` to the Webcache's IP address.

For further information about the Domain Name System, see "Domain Name System" on page 28.

When a Web browser on a client machine is configured to use a WPAD server on your network or the Webcache as a WPAD server, there may be a pause of several seconds when it first tries to connect. The delay is caused by the Web browser connecting to your Domain Name System (DNS) server when it is initially started. This is normal behavior. Once the Web browser has accessed the WPAD server or Webcache, subsequent browser requests will operate without delays caused by WPAD.

Configuring Your DHCP Server

You can use the Web Proxy Auto-Discovery (WPAD) protocol with Dynamic Host Configuration Protocol (DHCP) client machines on your network if:

- the DHCP server is Windows 2000-based and
- the DHCP client machines are Windows 2000-based and
- the DHCP client machines are using Internet Explorer 5 or later

You need to add the WPAD functionality to your DHCP server using DHCP Manager. For further information, view the Microsoft Knowledge Base at:

`http://search.support.microsoft.com/kb/c.asp`
(correct at time of publishing)

and search for the article ID number `Q252898`.

Configuring Internet Explorer to Use WPAD

To configure Internet Explorer to use WPAD:

1. Open Internet Explorer.
2. From the *Tools* menu, click *Internet Options*.
3. Click the *Connections* tab.
4. Click *LAN Settings*.
5. Check *Automatically detect settings*.
6. Click *OK*.
7. Close Internet Explorer.

Testing WPAD

To confirm that WPAD is working successfully:

1. Open Internet Explorer and log in to the Web interface.
2. Click *Device* on the Toolbar.
3. Select *Caching* > *Access Logging* in the Navigation Tree.
4. Check *Enable Web Access Logging*.
5. Select one of the five access log formats. Click *OK*.
6. Perform some Web browsing from a client machine that is configured to use WPAD.
7. Log in to the Web interface again.
8. Click *Device* on the Toolbar.
9. Select *Caching* > *View Access Log* in the Navigation Tree.
10. Check that there are Web browser accesses in the Access Log.

WPAD Resources

You can view the Internet Draft for the Web Proxy Auto-Discovery Protocol at:

http://www.ietf.org/internet-drafts/draft-cooper-webi-wpad-00.txt
(correct at time of publishing)

Third-party Tools

There are applications from many vendors that can help you to manage networks of client machines.

Microsoft offers the Internet Explorer Administration Kit and Systems Management Server, which allow you to remotely configure Web browsers and Proxy Cache settings.

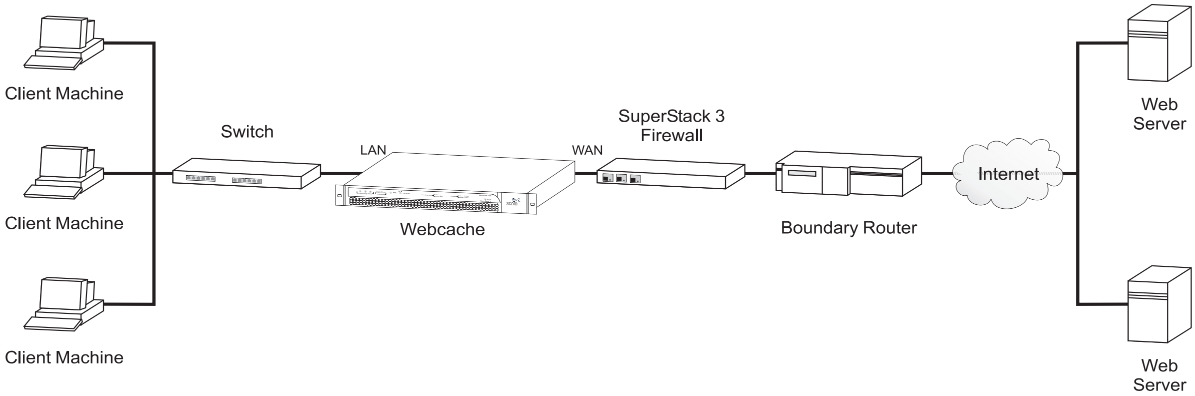
http://www.microsoft.com/windows/ieak/en/default.asp

Windows 2000 Server has the capability to manage Web browser configurations through the its domain management tools.

Other vendors include Hewlett Packard, Intel and Tivoli.

Inline Cache Deployment

Figure 13 Inline Cache Deployment



In the Inline Cache deployment the Webcache is directly connected to a switch in your LAN via the LAN port and a WAN gateway or firewall via the WAN port. All network traffic passes through the Webcache, regardless of whether it is Web or non-Web traffic.

Inline Cache Mode essentially provides transparent cache deployment via the software built into the Webcache, rather than through a separate

Layer 4 redirection device. All Web traffic arriving from client machines to the LAN port of the Webcache is directed into the caching software. All non-Web traffic is automatically sent back out onto the network via the WAN port. Cache misses are automatically redirected from the LAN port to the WAN port.

For further information, see "Configuring Inline Cache Mode" on page 118.

Advantages

- You do not have to add new devices to your network. Therefore it is easy to try out the Webcache in your network.
- No configuration of the Web browser on each client machine is needed because all network traffic goes through the Webcache.

Disadvantages

- The Webcache is a single point of failure; if it fails, the entire network becomes inaccessible.
- All incoming and outgoing network traffic is handled by the software built into the Webcache. The peak packet rate that can be sustained is therefore lower than using a Layer 4 device, resulting in reduced performance.

Parent Caching

Parent Caching allows you to explicitly configure a hierarchy of Webcaches within your network. Web requests from client machines that are not fulfilled by a child Webcache (cache misses) can be routed to parent Webcaches instead of the origin Web server. If a parent Webcache has the requested content, it serves it back to the child Webcache, which in turn caches and serves it back to the client machines.

For further information, see "Configuring Parent Caching" on page 119.

You can configure a child Webcache to use parent caching regardless of which deployment mode it is currently operating in. The child Webcache uses the TCP port number that you configure for the parent Webcache to send its requests.

Any compliant HTTP proxy cache can be used as a parent Webcache. The parent Webcache does not have to be a 3Com SuperStack 3 Webcache.

You can configure a child Webcache to forward requests to up to four parent Webcaches. If one of the parent Webcaches does not have the requested content or is unavailable, the child Webcache will automatically try the next specified parent Webcache. If none of the parent Webcaches are available, the child Webcache will forward its request to the origin server.

If you do not want all cache misses to be forwarded to the parent Webaches, you can configure an Exclusion List on the child Webcache. You can specify IP addresses, IP address ranges and domain names that the child Webcache should request directly from the origin server instead of from the parent Webcaches.

Example

You may want to exclude cache misses to a LAN server in your network. If you choose not to exclude the server, the cache misses will be forwarded across the network to the parent Webcaches and then back again, rather than being retrieved directly from the local server.

All client machines and Web sites that you specify in the Cache Bypass screen will not be sent to the parent Webcaches; for further information, see "Cache Bypass" on page 186.

How does Parent Caching Work?

Parent Caching operates in the following way:

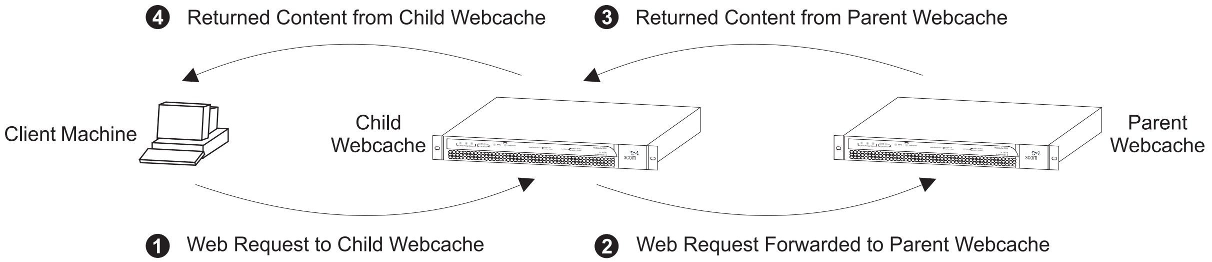
1 A URL is entered into a Web browser by a user on a client machine in your network.

2 The child Webcache receives the request for the URL from the client machine and checks its cache for the requested content.

3 If the content is not in the cache or the content is expired (see"Current and Expired Content" on page 32), the child Webcache forwards the request to the parent Webcache.

4 If the content is in the parent Webcache it is simultaneously served to the client machine and stored in the child Webcache, as shown in Figure 14. Subsequent requests for that content will be served directly from the child Webcache.

Figure 14 Parent Caching

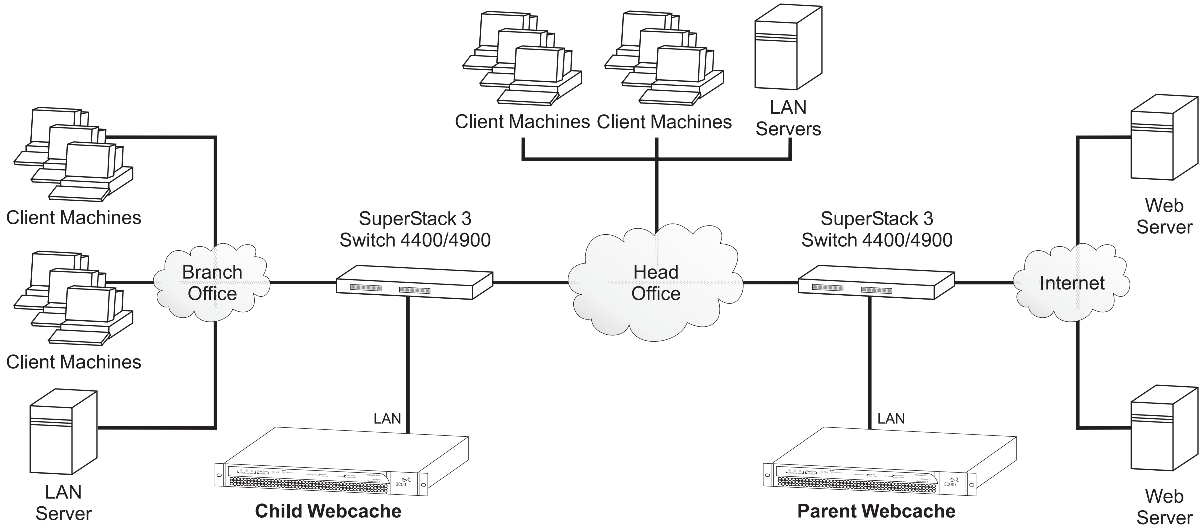

4 Returned Content from Child Webcache
3 Returned Content from Parent Webcache
Client Machine
Child Webcache
Parent Webcache
1 Web Request to Child Webcache
2 Web Request Forwarded to Parent Webcache

5 If the content is not in the parent Webcache, it is retrieved from either the origin server or another parent Webcache. The content is then cached by the parent Webcache and simultaneously served to the client machine and stored in the child Webcache.

Parent Caching Network Example

The single parent Webcache example in Figure 15 shows a local Branch Office and a remote central Head Office. All requests for the Internet are routed through the Head Office site before reaching the World Wide Web because the Head Office site contains the physical WAN link. Therefore the Webcache that is deployed between the Branch Office and Head Office is the child Webcache. All cache misses from that Webcache are forwarded to the parent Webcache, which is deployed between the Head Office and the Internet.

Figure 15 Parent Cache Deployment (single parent)



Accidental Webcache Hierarchies

An accidental Webcache hierarchy automatically exists in the networking example shown in Figure 15 if the parent Webcache is configured in either Transparent cache, Inline cache or WCCP mode. In each of these deployment modes Web requests are transparently intercepted by a device in your network and redirected to the Webcache. Therefore the parent Webcache will accidentally serve Web requests that it has received from the child Webcache, without the child being explicitly aware of the existence of the parent.

The main advantage of an explicit parent Webcache configuration, as opposed to an accidental hierarchy, is that it allows for a more flexible network topology between child and parent cache. The child Webache directly forwards its cache misses to the parent Webcache by using the parent Webcache's IP address or domain name and TCP port number. Therefore you do not have to place the parent Webcache at a natural point of convergence in your network and you do not have to add a new redirecting device to your network.

ICP Caching

ICP Caching is an open standard protocol allowing multiple proxy caches to cooperate and appear as a single larger Webcache. It originally appeared at a time when there was very little storage capacity on an individual cache. Now that storage capacity is so much larger, in most environments ICP is no longer used. A single Webcache, or a Webcache operating with Parent Caches offers better behavior and performance. Some environments may still require ICP in order to integrate with other legacy caches.

ICP Caching creates an extended hierarchy similar to Parent Caching. ICP allows you to build hierarchies involving both ICP parent caches and ICP peer caches. The Webcache requests content from its peer caches before requesting content from its parents.

When a request is received from a browser, the Webcache first determines if it has the content itself. If it does not, it will ask its peers (i.e. those caches at the same level in the ICP hierarchy). If none of these peers has the content it will ask its parents. If they do not have the content, the Webcache will go directly to the origin server.

ICP Caching uses a different network protocol to Parent Caching. ICP Caching uses UDP/IP for communication between caches whereas Parent Caching uses TCP/IP.

ICP Caching has two disadvantages against Parent Caching:

- ICP Caching does not scale well — if your infrastructure grows and more caches are installed, the network bandwidth used by ICP, and the latency and reliability of the protocol can become an issue. This does not occur with Parent Caching.
- ICP Caching uses a connectionless protocol (UDP/IP) — if your network is busy and a packet containing caching information is lost, it will not be retransmitted. Consequently caching latency may go up as UDP messages are lost and unnecessary cache misses occur.

3Com recommends that you use Parent Caching in preference to ICP Caching unless you have an existing network of ICP Caches that you wish to maintain.

2 INSTALLING THE WEBCACHE

This chapter contains the information you need to install and set up the Webcache 1000/3000. It covers the following topics:

- Package Contents
- Webcache — Front View Detail
- Webcache — Rear View Detail
- Choosing a Suitable Site
- The Power-up Sequence
- Deploying the Webcache in Your Network
- Setting Up the Webcache for Management
- Connecting the Webcache to the Live Network
- Installing an Additional Cache Storage Device

WARNING: Safety Information. *Before installing or removing any components from the Webcache 1000/3000 or carrying out any maintenance procedures, you must read the safety information provided in* Appendix A *of this guide.*

AVERTISSEMENT: Consignes de sécurité. *Avant d'installer ou d'enlever tout composant du Webcache 1000/3000 ou d'entamer une procédure de maintenance, lisez les informations relatives à la sécurité qui se trouvent dans l'Appendice A de ce guide.*

VORSICHT: Sicherheitsinformationen. *Bevor Sie Komponenten aus dem Webcache 1000/3000 entfernen oder dem Webcache 1000/3000 hinzufuegen oder Instandhaltungsarbeiten verrichten, lesen Sie die Sicherheitsanweisungen, die in Anhang A in diesem Handbuch aufgefuehrt sind.*

Package Contents

- Webcache 1000 (3C16115) or Webcache 3000 (3C16116)
- CD-ROM
- Documentation
  - User Guide (this guide)
  - Release Notes
- Warranty Information Sheet
- Power Cord
- Rack-Mounting Kit containing:
  - 2 x Rack Mounting Rails
  - 2 x Rack Mounting Brackets
  - 2 x Adjustable Brackets
  - 2 x Front Plates
  - 16 x Screws

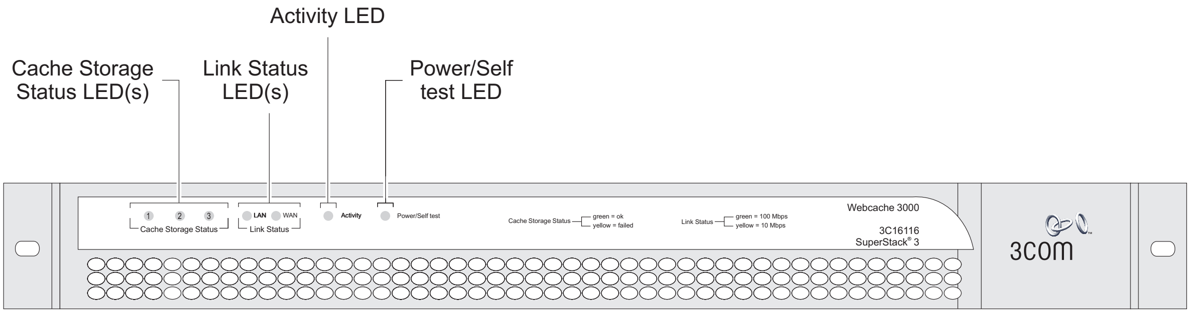
ℹ *You must use the rails and screws supplied with the Rack-Mounting Kit. Damage caused to the Webcache by using incorrect rails and screws invalidates your warranty.*

ℹ *For further information about rack-mounting the Webcache, refer to the "Rack Mounting Instructions" that accompany your Webcache.*

ℹ *You must register the Webcache to activate the warranty. See "Product Registration" on page 20.*

Webcache — Front View Detail

Figure 16 Webcache — Front View



The illustration above shows a Webcache 3000. The Webcache 1000 contains a single cache storage device and therefore has one Cache Storage Status LED on the front panel. The Webcache 3000 contains two cache storage devices and can also be upgraded with a third device; therefore it has three Cache Storage Status LEDs.

LEDs

Table 4 lists LEDs visible on the front of the Webcache, and how to read their status according to color. For information on using the LEDs for problem solving, see "Solving Problems Indicated by LEDs" on page 277.

Table 4 LED Behavior

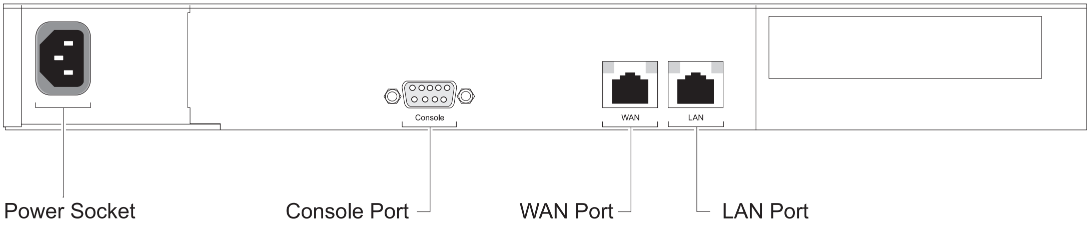
LED	Color	Indicates
Cache Storage Status LED(s)		
	Green	The cache storage device is present and operating normally.
	Green flashing	The cache storage device is being prepared for use by the Webcache. The LED changes to Green when it is in use.
	Yellow	The cache storage device has failed.
	Yellow flashing	The cache storage device is being prepared for removal. The LED changes to Off when the drive is ready for removal.
	Off	The cache storage device is not present.
Link Status LEDs		
	Green	A Fast Ethernet speed (100 Mbps) link is present, and the port is enabled.
	Yellow	An Ethernet speed (10 Mbps) link is present, and the port is enabled.
	Off	No link is present.

LED	Color	Indicates
Activity LED		
	Green flashing	The cache is active and caching is occurring.
	Off	The cache is not active. This is normal behavior for an idle Webcache.
Power/Self test LED		
	Green	The Webcache is powered-up and operating normally.
	Green flashing	The Webcache is either initializing or performing a software upgrade (see note below).
	Yellow	The Webcache is powered-up but a failure has occurred.
	Yellow flashing	An internal emergency recovery procedure has reset the Webcache back to its factory default settings. The LED continues to flash yellow until you change the IP address of the Webcache.
	Off	The Webcache is not powered-up. This may indicate a power failure.

If the Webcache experiences an unrecoverable error during initialization the Power/Self Test LED flashes Green. Take a note of the color and status of each LED on the front before you contact 3Com technical support for assistance.

Webcache — Rear View Detail

Figure 17 Webcache — Rear View



WARNING: *WAN and LAN RJ-45 Ports. These are shielded RJ-45 data sockets. They cannot be used as standard traditional telephone sockets, or to* *connect the unit to a traditional PBX or public telephone network. Only connect RJ-45 data connectors, Switches or Routers to these sockets.*

Either shielded or unshielded data cables with shielded or unshielded jacks can be connected to these data sockets.

Power Socket

The Webcache automatically adjusts its power setting to any supply voltage in the range 90-240 VAC.

Console Port

The console port allows you to connect a terminal, terminal emulator or modem and perform remote or local out-of-band management. The console port uses a standard null-modem cable and is set to 9600 baud, 8 data bits, no parity and 1 stop bit.

WAN Port

The WAN port is an auto-negotiating 10BASE-T/100BASE-TX RJ-45 port. It is used to connect the Webcache to the network in an Inline Cache deployment environment. For further information, see "Inline Cache Deployment" on page 52.

The WAN port should be left disconnected if the Webcache is not being deployed in an Inline Cache configuration.

LAN Port

The LAN port is an auto-negotiating 10BASE-T/100BASE-TX RJ-45 port. It is used to connect the Webcache to the network in either Proxy or Transparent deployment environments. Web network traffic travels to and from the Webcache via the LAN port. For further information, see "Deploying the Webcache in Your Network" on page 70.

You must connect the WAN and LAN ports to your network using appropriate network cables. For further information, see the "Cable Specifications and Pin-outs" appendix on page 295.

Configuring the WAN and LAN Ports

You can configure the following settings for the WAN and LAN ports:

- Auto-Negotiation — You can enable or disable this setting. It is enabled by default.

If Autonegotiation is enabled, the negotiated link speed and duplex setting are displayed.

If Auto-Negotiation is disabled, you can configure:

- Link Speed — You can set this to 100 Mbps or 10 Mbps.
- Duplex State — You can set this to Full Duplex or Half Duplex.

You cannot enable or disable the WAN or LAN port itself. The port can safely be left disconnected if it is not being used.

WAN and LAN Port LEDs

Figure 18 Webcache — WAN and LAN Port LEDs

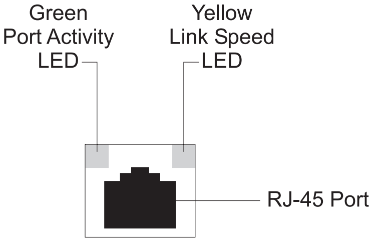


Table 5 lists LEDs visible on the rear of the Webcache, and how to read their status according to color. For information on using the LEDs for problem solving, see "Solving Problems Indicated by LEDs" on page 277.

Table 5 LED Behavior

LED	Color	Indicates
Port Activity LED		
	Green Flashing	Full-duplex packets are being transmitted/received on the port.
	Yellow Flashing	Half-duplex packets are being transmitted/received on the port.
	Off	No link is present.
Link Speed LED		
	Yellow On	A Fast Ethernet speed (100 Mbps) link is present.
	Yellow Off	An Ethernet speed (10 Mbps) link is present.

The Link Speed LED does not change its state if the link is broken. It remains in its current state until a new link is established. Therefore Green Off, Yellow On indicates that no link is present and that the link was previously 100 Mbps. It does not indicate that a 100 Mbps link is still present.

Choosing a Suitable Site

The Webcache must be mounted in a standard 19-inch 4-posted equipment rack, and is suited for use in a wiring closet, an equipment room, a server room, or telecommunications room. A rack-mounting kit is supplied with the Webcache.

CAUTION: *Ensure that the ventilation holes in the Webcache are not obstructed.*

When deciding where to position the Webcache, ensure that:

- Cabling is located away from:
  - sources of electrical noise such as radios, transmitters and broadband amplifiers.
  - power lines and fluorescent lighting fixtures.
- The Webcache is accessible and cables can be connected easily.
- Water or moisture cannot enter the case of the Webcache.
- Air-flow is not restricted around the Webcache. 3Com recommends that you provide a minimum of 25 mm (1 in.) clearance.
- Air temperature around the Webcache does not exceed 40 °C (104 °F).

If the Webcache is installed in a 19-inch rack or closed assembly its local air temperature may be greater than room ambient temperature.

- The air is as free from dust as possible.
- The Webcache is situated away from sources of conductive (electrical) dust, for example laser printers.
- The Webcache is installed in a clean, air conditioned environment.
- The AC supply used by the Webcache is separate to that used by units that generate high levels of AC noise, for example air conditioning units and laser printers.

Rack-Mounting the Webcache

The Webcache is 1U high and will fit in most standard 19-inch rack mounts.

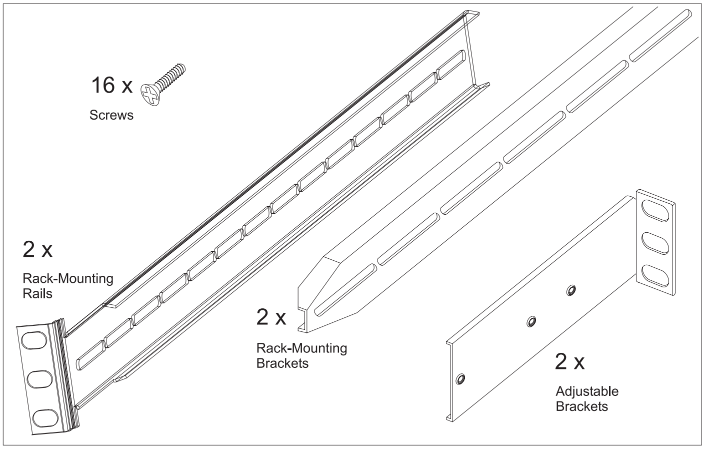
CAUTION: *The rear of the Webcache must be supported. This is best achieved through the use of a 19-inch 4-posted rack.*

CAUTION: *Disconnect all cables from the Webcache before continuing.*

You must use the rack-mounting rails and screws supplied with the Webcache. Damage caused to the Webcache by using incorrect rails and screws invalidates your warranty.

A Rack-Mounting Kit is supplied with the Webcache which contains the items shown in Figure 19. The rack-mounting rails and rack-mounting brackets are attached to the Webcache. The adjustable brackets and screws are contained within the Webcache packaging.

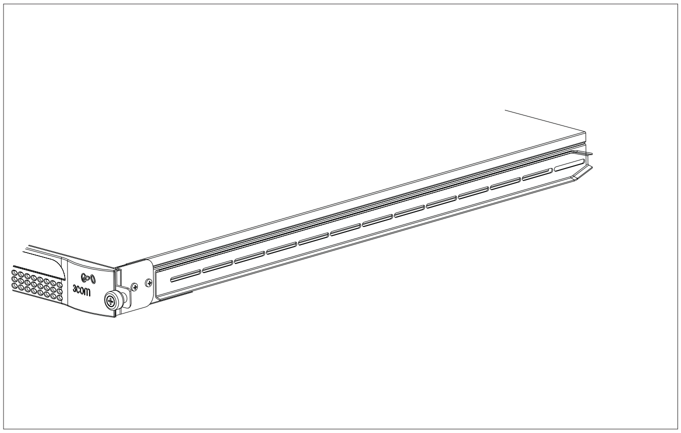
Figure 19 The Rack-Mounting Kit Contents



To rack-mount your Webcache:

1 Place the Webcache the right way up on a hard flat surface, with the front facing towards you. The rack-mounting brackets are attached to each side of the Webcache, as shown in Figure 20.

Figure 20 Rack-Mounting Bracket Attached to the Webcache



2 Slide the rack-mounting rails off the rack-mounting brackets on both sides of the Webcache.

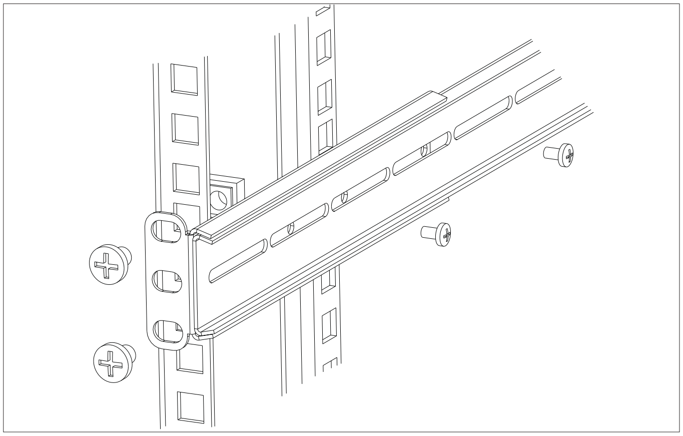
3 Use an adjustable bracket to secure a rack-mounting rail to the rear of your rack as shown in Figure 21. To do this:

   a Slide the adjustable bracket onto the rack-mounting rail and attach it using two of the screws provided at a position suitable for your rack.

   b Adjust the rack-mounting rail to fit the depth of your rack.

   c Use rack-nuts (not supplied) to attach the rack-mounting rail and adjustable bracket assembly to the rear of your rack.

Figure 21 Fitting a Rack-Mounting Rail to the Rear of the Rack

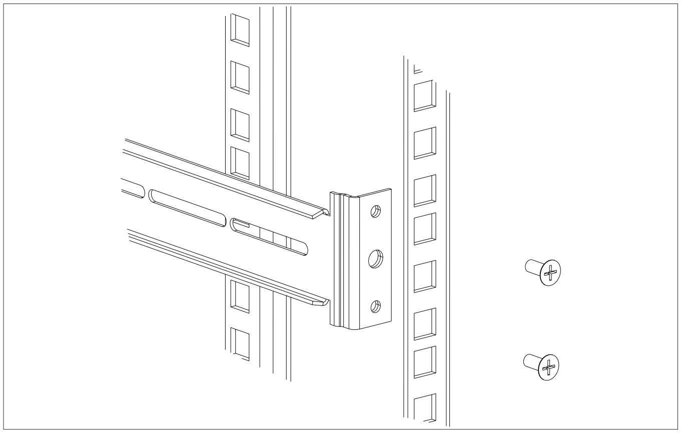


4 Attach the rack-mounting rail to the front of the rack. To do this:

  a Insert two screws through aligned openings in the front plate, rack and rack-mounting rail as shown in Figure 22.

  b Tighten the screws with a suitable screwdriver.

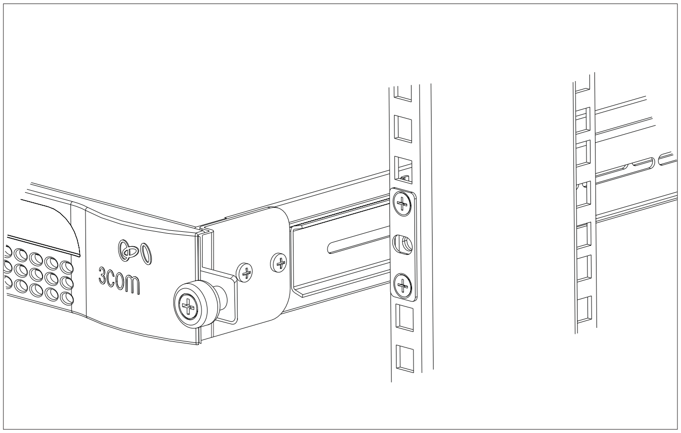
Figure 22 Fitting a Rack-Mounting Rail to the Front of the Rack



5 Slide the rack-mounting brackets on the sides of the Webcache into the rack-mounting rails.

6 Secure the front of the Webcache to the rack with the captive thumbscrews, as shown in Figure 23. Screw the thumbscrews into rack-nuts (not supplied).

Figure 23 Attaching the Webcache to the Rack



7 Ensure that the ventilation holes in the Webcache are not obstructed.

The Power-up Sequence

The following sections describe how to get your Webcache powered-up and ready for operation.

Powering-up the Webcache

Use the following sequence of steps to power-up the Webcache:

1 Plug the power cord into the power socket at the rear of the Webcache.

2 Plug the other end of the power cord into your power outlet.

3 The Webcache automatically powers-up, which takes approximately 60-90 seconds. During power-up all of the LEDs light and the Power/Self test LED flashes green. When the Webcache has powered-up and is operating normally, the Power/Self test LED changes to non-flashing green.

⚠ ***CAUTION:*** *The Webcache has no ON/OFF switch; the only method of connecting or disconnecting mains power is by connecting or disconnecting the power cord.*

Checking for Correct Operation of LEDs

During the power-up of the Webcache, all ports on the Webcache are disabled, all of the LEDs light and the Power/Self test LED flashes green

When the power-up has completed, check the Power/Self test LED to make sure that your Webcache is operating correctly. Table 6 shows possible behavior for the LED.

Table 6 Power/Self test LED behavior

Color	State
Green	The Webcache is powered-up and operating normally.
Green flashing	The Webcache is either initializing or performing a software upgrade.
Yellow	The Webcache is powered-up but is not caching — a failure has occurred.
Yellow flashing	An internal emergency recovery procedure has reset the Webcache back to its factory default settings. The LED continues to flash yellow until you change the IP address of the Webcache.
Off	The Webcache is not powered-up. This may also indicate a power failure.

If the LEDs on the Webcache indicate a problem refer to "Solving Problems Indicated by LEDs" on page 277.

Deploying the Webcache in Your Network

You must choose how you are going to deploy the Webcache in your network. The Webcache can be deployed in the following ways:

- Transparent caching
- Proxy Relay caching
- Proxy caching
- Inline caching

For further information about each deployment mode, see "Deployment Modes Overview" on page 32.

CAUTION: *3Com recommends you set up the Webcache for management in a test network environment before you introduce it into your live network. For further information, see "Setting Up the Webcache for Management" on page 71.*

Setting Up the Webcache for Management

You can quickly set up the Webcache for management in two ways:

- Setting Up Using the Web Interface — Connect a management workstation to the Webcache over an IP test network or directly via a cross-over cable. For further information, see "Setting Up Using the Web Interface" on page 71.

  or

- Setting Up Using the Command Line Interface — Connect a management workstation to the Webcache over an IP test network or connect a terminal or terminal emulator to the console port of the Webcache directly, or through a modem. For further information, see "Setting Up Using the Command Line Interface" on page 74.

***CAUTION:** You must configure the basic settings of the Webcache by completing the Getting Started wizard before you introduce the Webcache to your live network. In particular, ensure that the IP settings of the Webcache fit into those of your network. For further information, see "Getting Started Wizard Settings" on page 309.*

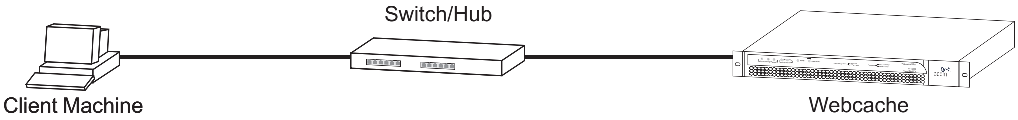
Setting Up Using the Web Interface

You can setup the Webcache for management via the Web interface by using a Web browser on a management workstation that is connected to the Webcache over your test network, or directly using a cross-over cable.

Setting Up Over the Test Network

The Webcache is pre-configured with a default IP address, which is within the range of addresses reserved by the IETF for private IP networks. This default address allows you to run the Web interface without any initial configuration of IP addresses. The default IP address of the Webcache is 192.168.1.253.

Figure 24 Setting Up Over the Test Network



To connect the Webcache to the test network:

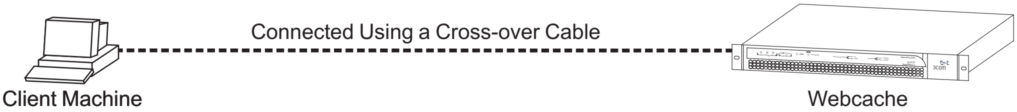
- The client machine must be in the same subnet as the Webcache to be able to access it using the default IP address.

- You must have an IP stack correctly installed on the client machine. You can check this by trying to browse the World Wide Web; if you can browse, an IP stack is installed. If you do not have access to the World Wide Web, you can check that the IP stack is installed by pinging another device in your network. For further information, see "Pinging Other Devices" on page 228.

Setting Up Using a Cross-over Cable

Alternatively, you can directly connect a client machine to the Webcache by attaching a cross-over cable to the LAN port on the rear panel. For further information, see "Webcache — Rear View Detail" on page 62.

Figure 25 Setting Up Using a Cross-over Cable



Accessing the Web Interface

To access the Web interface:

1 Open the Web browser on the management workstation. To display the Web interface correctly, use one of the following Web browsers:

- Microsoft Internet Explorer v4.0
- Microsoft Internet Explorer v5.0
- Microsoft Internet Explorer v5.5
- Microsoft Internet Explorer v6.0
- Netscape Communicator v4.5
- Netscape Communicator v4.6
- Netscape Communicator v4.7
- Netscape Communicator v6.0

3Com recommends that you use a later version of Internet Explorer than version 5.0.

For the browser to operate the Web interface correctly JavaScript™ and Cascading Style Sheets must be enabled on your browser. These features are enabled on a browser by default. You will only need to enable them if you have changed your browser settings.

Also the Web interface has been optimized for PC screens with the desktop area set to 800 by 600 pixels. 3Com recommends that you set the font size to Small Fonts.

2 In the Location/Address field of the browser, enter the URL of the Webcache. This must be in the format:

```
http://nnn.nnn.nnn.nnn
```

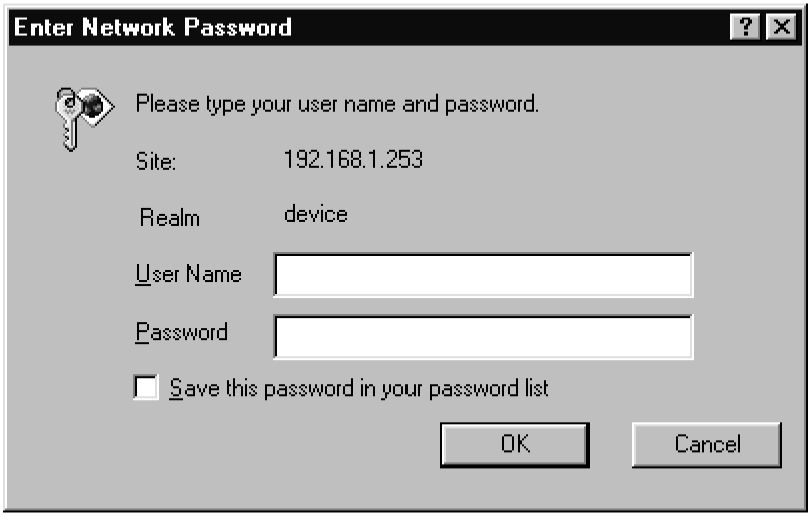
where `nnn.nnn.nnn.nnn` is the IP address of the Webcache.

192.168.1.253 is the default IP address of the Webcache.

*You can include the port number on which the Webcache listens as part of the URL of the Webcache i.e. http://192.168.1.253:**8081**.*

3 When the browser has located the Webcache, a user name and password screen is displayed as shown in Figure 26.

Figure 26 User name and password screen



Enter Network Password

Please type your user name and password.

Site: 192.168.1.253

Realm device

User Name

Password

□ Save this password in your password list

If the user name and password screen is not displayed, see "Solving Web Interface Problems" on page 277.

4 Enter your user name and password. For further information, see "Logging in as a Default User" on page 88. Click *OK*.

5 The Getting Started wizard is displayed when the Web interface has loaded. You must configure the basic settings of the Webcache by completing the Getting Started wizard before you introduce the

Webcache to your live network. For further information, see "Getting Started Wizard Settings" on page 309.

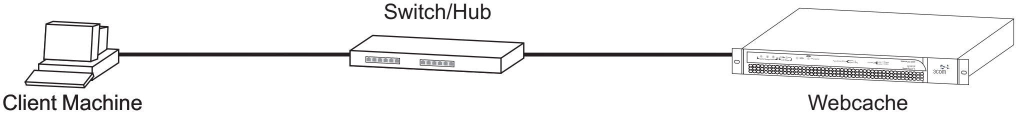
Setting Up Using the Command Line Interface

You can setup the Webcache for management via the Command Line Interface by running a Telnet session on a management workstation that is connected to the Webcache over your test network, or locally via a console port connection.

Setting Up Over the Test Network

The Webcache is pre-configured with a default IP address, which is within the range of addresses reserved by the IETF for private IP networks. This default address allows you to run the Command Line Interface without any initial configuration of IP addresses. The default IP address of the Webcache is 192.168.1.253.

Figure 27 Setting Up Over the Test Network



To setup the Webcache using the Command Line Interface over a test network using Telnet, open a Telnet session using a terminal emulator by specifying the IP address of the Webcache. If you are unsure how to do this, check the documentation supplied with the Telnet facility

To connect the Webcache to the test network:

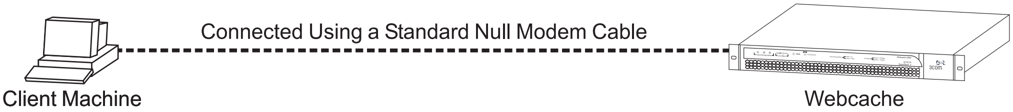
- The client machine must be in the same subnet as the Webcache to be able to access it using the default IP address.
- You must have an IP stack correctly installed on the client machine. You can check this by trying to browse the World Wide Web; if you can browse, an IP stack is installed. If you do not have access to the World Wide Web, you can check that the IP stack is installed by pinging another device in your network. For further information, see "Pinging Other Devices" on page 228.

Setting Up Through the Console Port

Alternatively, you can directly connect a client machine to the Webcache by attaching a null-modem cable to the console port on the rear panel.

For further information, see "Webcache — Rear View Detail" on page 62.

Figure 28 Setting Up Through the Console Port



To connect to the Webcache via the console port:

1. You must connect a terminal or terminal emulator to the console port on the rear panel of the Webcache. For further information, see "Webcache — Rear View Detail" on page 62.

   - If you are connecting directly to the console port, you need a standard null-modem cable.
   - If you are connecting to the console port using a modem, you need a standard modem cable. The console port of the Webcache has a male 9-pin D-type connector. You can find pin-out diagrams for both cables in the "Cable Specifications and Pin-outs" appendix on page 295.

   You must use a VT52 or VT100/ANSI compatible terminal emulator.

   To connect the cable:

   a Attach the female connector on the cable to the male connector on the console port of the Webcache.

   b Tighten the retaining screws on the cable to prevent it from being loosened.

   c Connect the other end of the cable to your terminal, terminal emulator, or modem. Make sure that the terminal, terminal emulator, or modem have the same settings as the console port:

      - 8 data bits
      - no parity
      - 1 stop bit
      - 9600 baud (default value)

2. To configure the settings of the terminal, terminal emulator, or modem, see the documentation that accompanies it. You must configure the terminal and set the line speed (baud) to 9600. You can change the baud rate of the console port via the Web interface.

Accessing the Command Line Interface

To access the Command Line Interface, take the following steps:

1 The login sequence for the Command Line Interface begins as soon as the Webcache detects a connection to its console port, or as soon as a Telnet session is started.

If the login sequence does not begin immediately, press Return a few times until it does begin. If the sequence still does not begin, see "Solving Command Line Interface Problems" on page 280.

2 At the Login and Password prompts, enter your user name and password. For further information, see "Logging in as a Default User" on page 88.

3 If you have logged on correctly, the Top-level menu of the Command Line Interface is displayed as described in "Understanding the Command Line Interface" on page 84. If you have not logged on correctly, the message `Incorrect password.` is displayed and the login sequence starts again.

4 Access the Getting Started wizard, which allows you to quickly configure the basic setup information for the Webcache.

At the Top-level menu, enter:

```
gettingStarted
```

5 The Getting Started wizard is displayed. You must configure the basic settings of the Webcache by completing the Getting Started wizard before you introduce the Webcache to your live network. For further information, see "Getting Started Wizard Settings" on page 309.

Connecting the Webcache to the Live Network

The following sections describe how to connect the Webcache to your live network.

***CAUTION:** You must configure the basic settings of the Webcache by completing the Getting Started wizard before you introduce the Webcache to your live network. In particular, ensure that the IP settings of the Webcache fit into those of your network.*

Choosing the Correct Cables

3Com recommends that you use Category 5 cable to connect the LAN port to your network — the maximum segment length for this type of cable is 100 m (328 ft).

Connecting the Webcache

Use the following sequence of steps to connect the Webcache to your network:

1. Connect an appropriate network cable to the LAN port on the rear panel of the Webcache. Simply slot the connector on the cable into the RJ-45 LAN port. When the connector is fully in, its latch locks in place. To disconnect the cable, push the connector's latch in and remove it.
2. Connect the other end of the network cable to a 10BASE-T/100BASE-TX port on a suitable switch or hub in your network. The switch or hub that you connect the Webcache to is determined by the deployment environment that you choose; for further information, see "Deploying the Webcache in Your Network" on page 70.

Installing an Additional Cache Storage Device

The Webcache 3000 has two cache storage devices installed when you purchase it. You can install an additional cache storage device in the third bay of the Webcache 3000. This improves the performance of the Webcache in the following ways:

- **Reduced Web Latency**

  The amount of time that the Webcache takes to respond to client machine Web requests is reduced.
- **Increased Peak Throughput**

  The maximum amount of Web throughput that the Webcache can serve is increased.
- **Increased Hit Rate**

  Additional Web content can be stored on the Webcache, increasing the chances of a cache hit.

You need to purchase a hard drive approved by 3Com and insert it into the mounting tray in the third bay of the Webcache. A list of approved hard drives can be found at:

```
htpp://www.3com.com/sswebcache
```

⚠ ***CAUTION:** You must purchase and install a hard drive that 3Com has approved. Your warranty will be invalidated if you install an unapproved drive.*

For further information, see the "Installing an Additional Cache Storage Device" appendix on page 317.

II MANAGING THE WEBCACHE

3 USING THE CLI INTERFACE

This chapter contains information about managing the Webcache using the management software that resides on the Webcache. Managing the Webcache can help you to improve the efficiency of the Webcache and therefore the overall performance of your network. It allows you to make full use of the features offered by the Webcache, and to change and monitor the way it works. The following topics are covered:

The Webcache 1000/3000 has a Command Line Interface that allows you to manage certain features from a terminal. You may want to use the Command Line Interface to setup the Webcache for management through the console port or over your network via Telnet.

This chapter describes how to access and use the Command Line Interface. It covers the following topics:

- Accessing the Command Line Interface
- Logging In To the Command Line Interface
- Understanding the Command Line Interface

Accessing the Command Line Interface

You can access the Command Line Interface using:

- A terminal or terminal emulator connected to the console port of the Webcache directly, or through a modem.
- A terminal or terminal emulator connected to the Webcache over an IP network using Telnet. You can do this in two ways:
  - Run a telnet session explicitly to the IP address or Domain Name System (DNS) name of the Webcache.
  - Select *System* > *Control* > *Telnet* in the Web interface. This opens a telnet session to the Command Line Interface.

You must use a VT52 or VT100/ANSI compatible terminal emulator.

Accessing the Command Line Interface Through the Console Port

To manage the Webcache using the Command Line Interface through the console port:

1 Connect the terminal or terminal emulator to the console port.

- If you are connecting directly to the console port, you need a standard null-modem cable.
- If you are connecting to the console port using a modem, you need a standard modem cable. The console port of the Webcache has a male 9-pin D-type connector. You can find pin-out diagrams for both cables in the "Cable Specifications and Pin-outs" chapter on page 295.

To connect the cable:

a Attach the female connector on the cable to the male connector on the console port of the Webcache.

b Tighten the retaining screws on the cable to prevent it from being loosened.

c Connect the other end of the cable to your terminal, terminal emulator, or modem. Make sure that the terminal, terminal emulator, or modem have the same settings as the console port:

- 8 data bits
- no parity
- 1 stop bit

To configure the settings of the terminal, terminal emulator, or modem, see the documentation that accompanies it. You must configure the terminal and set the line speed (baud) to match that of the Webcache console port. Unless you have changed it, the default line speed is 9600 baud. You can change the baud rate of the console port via the Web interface.

2 Access the Command Line Interface using a valid user name and password. Default user names and passwords are described in "Logging in as a Default User" on page 88.

3 Configure the basic settings of the Webcache by completing the Getting Started wizard. For further information, see "Setting Up Using the Command Line Interface" on page 74.

Accessing the Command Line Interface Over the Network

To manage the Webcache using the Command Line Interface over a network using Telnet, open a Telnet session using a terminal emulator by specifying the IP address of the Webcache. If you are unsure how to do this, check the documentation supplied with the Telnet facility.

Logging In To the Command Line Interface

To log in to the Command Line Interface, take the following steps:

1 Set up your network for Command Line Interface management; for further information, see "Accessing the Command Line Interface" on page 82. The login sequence for the Command Line Interface begins as soon as the Webcache detects a connection to its console port, or as soon as a Telnet session is started.

If the login sequence does not begin immediately, press Return a few times until it does begin. If the sequence still does not begin, see "Solving Command Line Interface Problems" on page 280.

2 At the Login and Password prompts, enter your user name and password. For further information, see "Logging in as a Default User" on page 88.

To prevent unauthorized configuration of the Webcache, 3Com recommends that you change the default password as soon as possible. To do this using the Command Line Interface, you need to log in as the default user and then follow the steps described in "Changing the Admin Password" on page 266.

If you have logged on correctly, the Top-level menu of the Command Line Interface is displayed as described in "Understanding the Command Line Interface" on page 84. If you have not logged on correctly, the message `Incorrect password.` is displayed and the login sequence starts again.

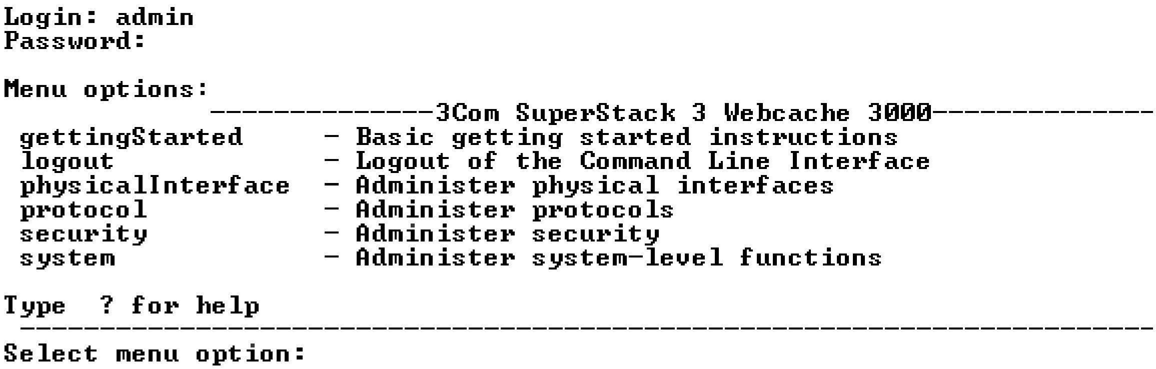
Exiting the Interface

You can exit the Command Line Interface at any time; to do this, enter **`logout`** at the Top-level of the Command Line Interface. If there is a period of inactivity lasting longer than 30 minutes, you are logged out of the Command Line Interface automatically. After the exit, the first key that you press returns you to the login sequence.

Understanding the Command Line Interface

Once you log in to the Command Line Interface, the Top-level menu is displayed as shown below:

Figure 29 The Top-level Menu



```
Login: admin
Password:

Menu options:
             ---------------3Com SuperStack 3 Webcache 3000---------------
 gettingStarted      - Basic getting started instructions
 logout              - Logout of the Command Line Interface
 physicalInterface   - Administer physical interfaces
 protocol            - Administer protocols
 security            - Administer security
 system              - Administer system-level functions

Type  ? for help
 ------------------------------------------------------------------------
Select menu option:
```

The Command Line Interface is made up of two areas:

- *The Menu Area* — Contains the current menu of commands. The menu can contain commands to configure the Webcache or commands to display other menus in the Command Line Interface. Each command is accompanied by a brief description of its purpose.
- *The Command Area* — Contains a `Select menu option:` prompt where you can enter the commands displayed in the menu area.

From the Top-level menu, you can access these sub-menus:

- **GettingStarted command**

  This command allows you to specify basic configuration settings for the Webcache.

- **Logout command**

  This command allows you to logout of the Command Line Interface.

- **PhysicalInterface Menu**

  This menu contains commands that allow you to view and change the physical setup of the WAN and LAN ports on the Webcache.

- **Protocol menu**

  This menu contains commands that allow you to view and change Protocol information and to display diagnostics-related information for the Webcache.

- **Security menu**

  This menu contains commands that allow you to view and change security-related information for the Webcache and the network.

- **System menu**

  This menu contains commands that allow you to view and configure information about the Webcache.

Entering Commands

The command area of the Command Line Interface contains a Select menu option prompt that allows you to enter the commands in the menu area.

Commands are not case-sensitive.

- **To enter a simple command:**

  At the prompt, enter the name of the command.

- **To enter multiple commands:**

  At the prompt, enter each command in succession. For example, to enter the Protocol menu and change the Webcache IP configuration, enter:

  ```
  protocol basicConfig
  ```

  from the Top-level menu.

- **To enter commands that require values:**

  Append the values to the name of the command. For example, to display the security menu and change your password, enter:

  ```
  security password <password>
  ```

  If you do not specify values for a command that requires them, you are prompted to enter the values. At each prompt, the default value is displayed in brackets.

- **To enter abbreviated commands:**

  At the prompt, enter enough characters to uniquely identify the commands. For example, to enter the security menu and change the password for the admin user, enter:

  ```
  se pa <password>
  ```

  from the Top-level menu.

- **To abort a command**

  Press [Esc] to return to the Top-level menu.

Displaying Menus

There are several ways to display the menus in the Command Line Interface menu structure:

- **To display sub-menus:**

  At the Select menu option prompt, enter the name of the menu or menus.

- **To display parent menus:**

  At the Select menu option prompt, enter `q`.

- **To display the Top-level menu:**

  Press [Esc].

Obtaining Help

You can access the Command Line Interface help system at any time by entering `?` at the Select menu option prompt.

4 USING THE WEB INTERFACE

This chapter contains information about managing the Webcache using the management software that resides on the Webcache. Managing the Webcache can help you to improve the efficiency of the Webcache and therefore the overall performance of your network. It allows you to make full use of the features offered by the Webcache, and to change and monitor the way it works. The following topics are covered:

- Management Software Interfaces
- Logging in as a Default User
- Accessing the Web Interface
- Understanding the Web Interface
- The Toolbar
- The Navigation Tree
- The Information Area

Management Software Interfaces

You can manage the Webcache using the Web interface management software. This is an internal set of Web pages that allow you to manage the Webcache using a Web browser that has JavaScript and Cascading Style Sheets enabled. Refer to the *Webcache Online Help* for detailed information about the Web interface.

The Webcache also has a Command Line Interface that allows you to manage certain features; for further information, see the "Command Line Interface" chapter on page 251.

Even if you do not intend to actively manage the Webcache, 3Com recommends that you change the default password to prevent unauthorized access to your Webcache. See Chapter 5 for further information.

Logging in as a Default User

If you manage the Webcache using the Web interface or the Command Line Interface, you need to log in with a valid user name and password.

The Webcache has one user name, which is listed in Table 7. You cannot create new user names for the Webcache.

Table 7 User Names

User name	Default Password	Access Level
admin	(no password)	The user can access and change all manageable parameters

CAUTION: *To prevent unauthorized access and configuration of the Webcache, 3Com recommends that you set a password for the admin user name as soon as possible.*

The admin *user name is case-sensitive.*

Accessing the Web Interface

To access the Web interface:

1 Open the Web browser on the management workstation. To display the Web interface correctly, use one of the following Web browsers:

- Microsoft Internet Explorer v4.0
- Microsoft Internet Explorer v5.0
- Microsoft Internet Explorer v5.5
- Microsoft Internet Explorer v6.0
- Netscape Communicator v4.5
- Netscape Communicator v4.6
- Netscape Communicator v4.7
- Netscape Communicator v6.0

If you use Internet Explorer, 3Com recommends that you use version 5.0 or later.

For the browser to operate the Web interface correctly Javascript and Cascading Style Sheets must be enabled on your browser. These features are enabled on a browser by default. You will only need to enable them if you have changed your browser settings. Also the Web interface has been optimized for PC screens with the desktop area set to 800 by 600 pixels. It is also recommended to set the font size to Small Fonts.

2 In the Location/Address field of the browser, enter the URL of the Webcache. This must be in the format:

`http://nnn.nnn.nnn.nnn`

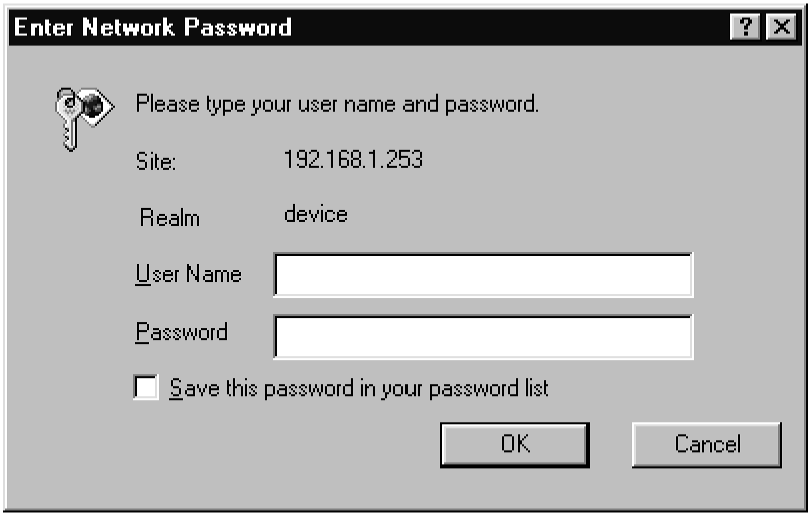
where **`nnn.nnn.nnn.nnn`** is the IP address of the Webcache.

192.168.1.253 is the default IP address of the Webcache.

*You can include the port number on which the Webcache listens as part of the URL of the Webcache i.e. http://192.168.1.253**:8081**.You must use port 8081 if you disable the Web interface on port 80 (see page 105 for more information).*

3 When the browser has located the Webcache, a user name and password screen is displayed as shown in Figure 30.

Figure 30 User Name and Password Screen



Enter Network Password

Please type your user name and password.

Site: 192.168.1.253

Realm device

User Name

Password

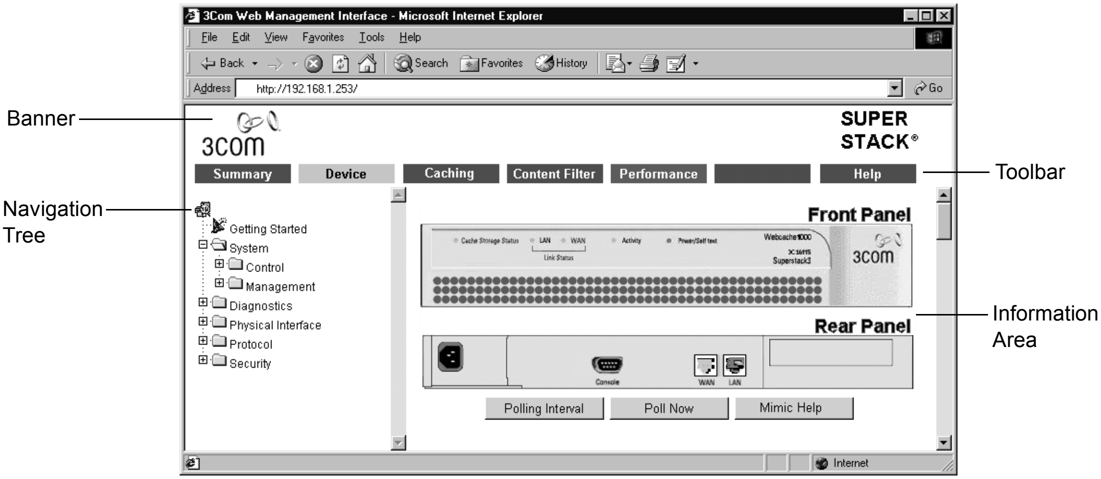
□ Save this password in your password list

If the user name and password screen is not displayed, see "Solving Web Interface Problems" on page 277.

4 Enter your user name and password. For further information, see "Logging in as a Default User" on page 88. Click *OK*.

Understanding the Web Interface

Figure 31 The Web Interface



Banner

Navigation Tree

Toolbar

Information Area

The Web interface is made up of four areas:

- **The Banner**

  This is always displayed at the top of the browser window. It displays the 3Com logo and SuperStack logo.

- The Toolbar

  This is always displayed at the top of the browser window, underneath the Banner. It contains three buttons which allow you to select different views in the View Area. See "The Toolbar" below.

- The Navigation Tree

  This is always displayed on the left side of the browser window. It contains various icons which allow you to manage your Webcache. See page 94.

- The Information Area

  This is always displayed on the right side of the browser window. It contains information about the managed Webcache. See page 96.

The Toolbar

The Toolbar is always displayed at the top of the browser window, underneath the Banner. It contains six buttons which allow you to select different views. Click on a toolbar item to see the corresponding view:

Summary — This view shows a summary of the current configuration of the Webcache but does not allow you to change any settings. The following will be displayed:

- The Navigation Tree displays the Summary Menu.
- The Information Area displays Summary Information consisting of the following Status Tables (see "The Status Tables" on page 99):
  - Device Summary
  - Enclosure Summary
  - Caching Summary
  - Caching Statistics Summary
  - Content Filtering Summary
  - Cache Storage Summary

Device — This view allows you to configure the physical and networking aspects of the Webcache. The following will be displayed:

- The Navigation Tree displays the Device Menu. See "Configuring the Webcache" on page 109.
- The Information Area displays the Device Mimic (see "The Device Mimic" on page 96) and the following Status Tables (see "The Status Tables" on page 99):
  - Device Summary
  - Enclosure Summary
  - Cache Storage Summary

Caching — This view allows you to control the content held by the Webcache. The following will be displayed:

- The Navigation Tree displays the Caching Menu. See "Controlling Caching" on page 179.

- The Information Area displays the Device Mimic (see "The Device Mimic" on page 96) and the following Status Tables (see "The Status Tables" on page 99):
  - Caching Summary
  - Caching Statistics Summary

Content Filter — This view allows you to monitor and block access to sites that you decide are inappropriate. The following will be displayed:

- The Navigation Tree displays the Content Filter Menu. See "Controlling and Monitoring Web Access" on page 137.
- The Information Area displays the Device Mimic (see "The Device Mimic" on page 96) and the following Status Tables (see "The Status Tables" on page 99):
  - Content Filtering Summary
  - Content Filtering Statistics

Performance — This view shows graphs of the caching and filtering statistics of the Webcache as well as the error rate generated by the sites being cached. The following will be displayed (See Chapter 14, "Performance Monitoring"):

- The Navigation Tree displays the Performance Menu.
- The Information Area displays the Performance View comprising the *Weekly Caching Performance Graphs*. See Chapter 14.

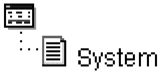
Help — This view allows you to access the Online Help system for the Webcache, additional information from the 3Com Web site and provides specification guidelines for running the Web interface. The following will be displayed (See "The Help View" on page 100):

- The Navigation Tree displays the Help Menu.
- The Information Area displays Online Help.

The Navigation Tree

The Navigation Tree is always displayed on the left side of the browser window. It is a Windows Explorer-like interface that contains various icons which allow you to manage your Webcache.

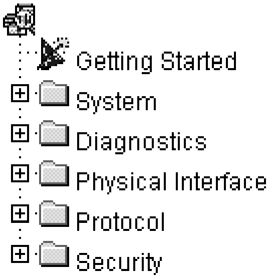
Figure 32 The Summary View Navigation Tree



By default, when you open the Web interface, the Summary View is selected and the Navigation Tree is fully collapsed with only the top-level options displayed, as shown in Figure 32.

Operations that you can perform to manage your Webcache are grouped into folders within the Navigation Tree. The options displayed depend on the view you select in the Toolbar. The Device View is shown in Figure 33. You can also perform some operations by using the device mimic.

Figure 33 The Device Navigation Tree



Click the folders or the nodes (the plus and minus symbols) to expand and collapse the Navigation Tree.

Every option within the Navigation Tree is selected by single-clicking the left mouse button.

The following table shows the various Navigation Tree symbols and their associated behavior:

Symbol	**Behavior**
⊟	Indicates that the next level of the Navigation Tree hierarchy is currently expanded. Click the symbol to collapse the next level. This only affects the Navigation Tree — no changes are made to the Information Area.
⊞	Indicates that the next level of the Navigation Tree hierarchy is currently collapsed. Click the symbol to expand the next level to its last expanded state. This only affects the Navigation Tree — no changes are made to the Information Area.
📂	Indicates that the next level of the Navigation Tree hierarchy is currently expanded. Click the symbol to collapse the next level. This only affects the Navigation Tree — no changes are made to the Information Area.
📁	Indicates that the next level of the Navigation Tree hierarchy is currently collapsed. Click the symbol to expand the next level. This only affects the Navigation Tree — no changes are made to the Information Area.
🗎 System	Click the symbol to update the Information Area with the latest summary information for the unit. This symbol is only available in the Summary View.
🗎	Click the symbol to perform an operation by opening a new window.
🪄	Click the symbol to open a wizard in a new window.
?	Click the symbol to launch a Help operation.

The Information Area

The Information Area is always displayed on the right side of the browser window. It contains information about the managed Webcache. The information displayed depends on the view you select in the Toolbar:

- If the Summary View is currently selected, a table is displayed which shows summary information for the Webcache.
- If one of the Device View, Caching View or Content Filter View is currently selected, the Device Mimic and the tables relevant to the view are displayed.
- If the Performance View is selected the Performance Graphs are displayed
- If the Help View is currently selected, specification guidelines for running the Web interface are displayed.

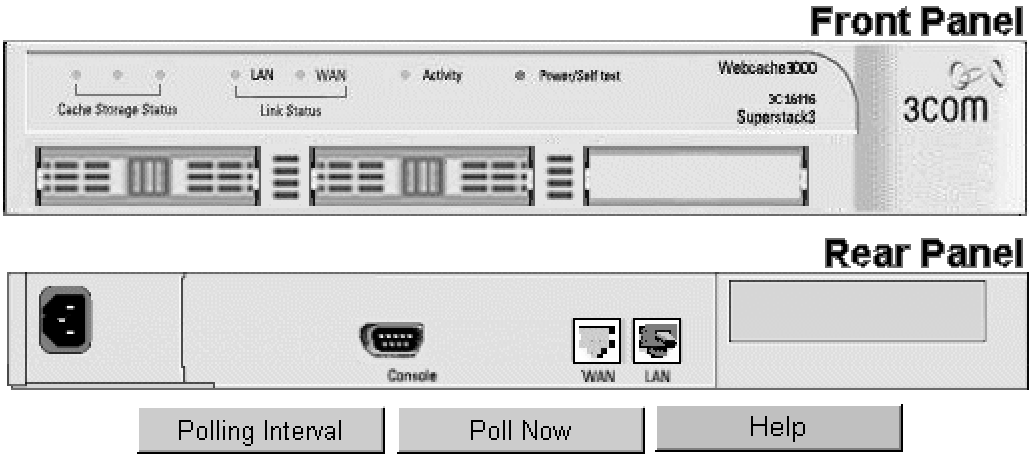
The Device Mimic

Clicking *Device*, *Caching* or *Content Filter* on the Toolbar will display the device mimic. The device mimic allows you to configure the physical and networking aspects of the Webcache.

The Information area specific to the view you have chosen is displayed on the right side of the browser and contains the device mimic and the tables relevant to the view.

Device Mimic

Figure 34 The Webcache 3000 Device Mimic



The device mimic is a virtual, interactive representation of the front and rear panels and the current status of the Webcache. All of the ports on the Webcache are shown. The device mimic is periodically updated to reflect changes in the Webcache. You can also perform certain operations by clicking on parts of the device mimic called “hotspots”:

- **Cache Storage Device Hotspots**

  The cache storage device bays on the front panel mimic for the Webcache 3000 are “hotspots”. Click one of the bays to open a pop-up menu that contains operations which you can launch for that cache storage device.

  The operations are Add Storage and Remove Storage.

  For further information, see “Preloading Content” on page 193.

The Cache Storage Device Hotspots are not available on the device mimic for the Webcache 1000 because cache storage devices cannot be added or removed.

- **Console Port Hotspot**

  The Console Port on the rear panel mimic is a “hotspot”. Click the port to open a pop-up menu that contains an operation which you can launch for the console port.

  The only operation available through this hotspot is Setup Console Port.

- **WAN/LAN Port Hotspots**

  The WAN and LAN Ports on the rear panel mimic are “hotspots”. Click the WAN or LAN port to open a pop-up menu that contains an operation which you can launch for that port.

  The only operation available through these hotspots is Port Setup.

  For further information, see “Configuring the WAN and LAN Ports”on page 63.

The device mimic also has three Controls, which are buttons that you can use to control the mimic and its appearance and to provide help information:

- **Polling Interval**

  Click this to set the rate at which the device mimic is refreshed. The default rate is 30 seconds.

- **Poll Now**

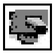
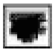
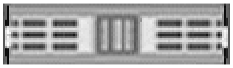
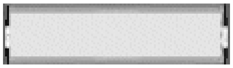
Click this to refresh the device mimic now.

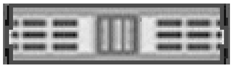
- **Mimic Help**

  Click this for an explanation of the symbols and colors on the device mimic's ports and caching devices.

The following table shows the various device mimic symbols and their associated behavior:

Figure 35 Device Mimic Symbols

Symbol	Behavior
	Indicates that the link is present and the port is operating normally. This is also indicated by the Port Activity LED on the rear panel of the Webcache being Green Flashing.
	Indicates that the port does not have an active link. This is also indicated by the Port Activity LED, on the rear panel of the Webcache, being Green.
	Indicates that the port is disabled in the present caching mode. This is also indicated by the Port Activity LED on the rear panel of the Webcache being Off.
	The icon, if shown without a Red border, indicates that the cache storage device is present and operating normally. This is also indicated by the Cache Storage Status LED on the front panel of the Webcache being Green. This symbol is only shown on the Webcache 3000 Device Mimic, as the Webcache 1000 does not have accessible cache storage devices.
	Indicates that the cache storage device is not present. This is also indicated by the Cache Storage Status LED on the front panel of the Webcache being Off. This symbol is only shown on the Webcache 3000 Device Mimic, as the Webcache 1000 does not have accessible cache storage devices. You can add a cache storage device into the empty bay. For further information, see Chapter 12 on page 193.

Symbol	Behavior
	The icon, if shown with a Red border, indicates that the cache storage device is present but has failed. This is also indicated by the Cache Storage Status LED on the front panel of the Webcache being Yellow. This symbol is only shown on the Webcache 3000 Device Mimic, as the Webcache 1000 does not have accessible cache storage devices. An email notification and an SNMP trap are both sent to inform you that a cache storage device has failed; for further information, see "Automatic System Events" on page 214. You should remove the failed cache storage device and return it to 3Com for replacement. For further information, see "Replacing a Failed Cache Storage Device" on page 314.

The Status Tables

Clicking *Summary*, *Device*, *Caching* or *Content Filter* on the Toolbar will display Status Tables in the Information Area. The Summary View displays most of the Status Tables and the Device Caching and Content Filter views display relevant Status Tables below the Device Mimic.

Device Summary (Appears in *Summary* and *Device* views)

The Device Summary table displays the following information for the Webcache. It shows the DNS Name, Type, Software Version, Hardware Version, IP Address, MAC Address, Boot Version, Product Number, Serial Number, Up Time and System Time of the Webcache.

Enclosure Summary (Appears in *Summary* and *Device* views)

The Enclosure Summary table displays the speed of the CPU fan and the temperature inside the Webcache indicating when either of these fall outside acceptable limits.

Caching Summary (Appears in *Summary* and *Caching* views)

The Caching Summary table shows the Deployment Mode, Proxy Port, Transparent Ports WCCP status and the method and status of Access Logging.

Caching Statistics Summary (Appears in *Summary* and *Caching* views)

The Caching Statistics Summary table shows the current Hit Rate and Request Rate of the Webcache.

Content Filtering Summary (Appears in *Summary* and *Content Filter* views)

The Content Filtering Summary table shows the Filtering Mode currently employed, the status of the filter licence, the status of the 3Com Filter download and the time of the last successful download. The features shown depends on the type of filtering system used. The Websense Enterprise Filtering Mode will show different information to that of Manual Filtering or 3Com Web Site Filtering.

Content Filtering Statistics (Appears in *Content Filter* View)

The Content Filtering Statistics table shows the number of Web requests blocked by the Webcache, the total number of Web requests made and the percentage of Web requests that were blocked.

Cache Storage Summary (Appears in *Summary* and *Device* views)

The Cache Storage Summary table displays the current status of the Webcache's cache storage devices. Each Device can be in one of the following states:

- OK — The cache storage device is present and operating normally.
- Failed — The cache storage device has failed.
- Add in Progress — The cache storage device is being prepared for use by the Webcache. The Cache Storage Status LED on the front panel of the Webcache changes to Green when it is in use.
- Remove in Progress — The cache storage device is being prepared for removal. The Cache Storage Status LED on the front panel of the Webcache changes to Off when the drive is ready for removal.
- Not Present — The cache storage device is not present.

The Performance View

The Performance View shows the bandwidth savings, hit/miss rate, request rate, response time and throughput for the Webcache. See Chapter 14, "Performance Monitoring".

The Help View

Click *Help* on the Toolbar to access the Help View. This view allows you to access the Online Help system for the Webcache, additional information from the 3Com Web site and provides specification guidelines for running the Web interface.

The Help View Navigation Tree contains options that allow you to access the Online Help system and additional information from the 3Com Web site. Your management workstation must have access to the Web for the 3Com options to work:

- Click *Contacts* to display contact information from the 3Com Web site in a new browser window.
- Click *Disk Failure* to open a 3Com Knowledge Base article which informs you how to return a failed Cache Storage Device to 3Com.
- Click *Home Page* to display the Home page of the 3Com Web site in a new browser window.
- Click *On-line Help* from the navigation tree or the *Online Help* button to open the Table of Contents of the Online Help system in a new browser window.
- Click *Product Registration* to register the Webcache on the 3Com Web site in a new browser window.
- Click *Webcache Support* to display support information from the 3Com Web site in a new browser window.

The Help View Information Area provides specification guidelines for running the Web interface. It is recommended that you access the Web Interface using the suggested Web Browsers and PC Platforms.

5 SECURING ACCESS TO THE WEBCACHE MANAGEMENT INTERFACES

This chapter contains information about ensuring that the Webcache is secure. It covers the following topics:

- Passwords
- Management Interface Setup
- Password Recovery

Passwords

Whenever you manage the Webcache using the Web interface or Command Line Interface, you need to log in with the *admin* username and password, as described in "Logging in as a Default User" on page 88.

CAUTION: *To prevent unauthorized access and configuration of the Webcache, 3Com recommends that you set a password for the* admin *username as soon as possible.*

Setting Passwords

To set the password using the Web interface, you need to login as the *admin* user, click *Device* on the toolbar and select *Security > Set Password* in the Navigation Tree to access the Password Configuration screen. Then follow the steps below.

You are prompted to set a password for the admin *user account during the Getting Started wizard, which automatically runs when you first access the Webcache's Web interface.*

You must enter the following information in either the Getting Started wizard or the Password Configuration screen:

1. Choose between the following options by clicking the appropriate radio button:
   - Do Not Change Password
   - Change Password for the admin Account
   - Set admin Password to the Factory Default Setting
2. Either:
   - If you choose *Do Not Change Password*, the existing password will not be changed.
   - If you choose *Change Password for the admin Account*, enter a new password in the *Password* field and enter it again in the *Confirm* field.

   Passwords can be up to 10 characters long, are case-sensitive and must only contain alpha-numeric characters.

   - If you choose *Set admin Password to the Factory Default Setting*, the password is automatically set to the default for the admin user account (no password).

Management Interface Setup

There are two methods of restricting the visibility of the Webcache's Web Interface. Both methods are configured from the Setup Management screen. To access the Setup Management screen:

1. Log in to the Web interface.
2. Click *Device* on the Toolbar.
3. Select *Security* > *Setup Management* in the Navigation Tree. The Setup Management window is displayed.
4. Configure the restrictions. See "Disabling Port 80" and "Restricting Address Access" below.
5. Click *OK* to save your changes or *Cancel* to return to the Web interface without making any changes.

Disabling Port 80

By default, the Web interface of the Webcache is available on both TCP port 80 and TCP port 8081. Since port 80 is the default port for Web browsing, the login screen of the Web interface is available to any user on your network by entering **`http://xxx.xxx.xxx.xxx/`** into a Web browser (where xxx.xxx.xxx.xxx is the IP address of the Webcache).

You can hide your Webcache from casual browsers by unchecking the *Make Web Interface Available on TCP port 80* box on the *Setup Management* window. Once this change has been saved the Webcache will no longer respond to default HTTP requests on this port and will be invisible to most browsers.

To access the Web interface of the Webcache in this mode type the following into your browser:

```
http://xxx.xxx.xxx.xxx:8081/
```

where xxx.xxx.xxx.xxx is the IP address or your Webcache. You will then be able to administer the Webcache as before.

Disabling port 80 does not change the caching operation of the Webcache. Only access to the Web interface is affected.

Restricting Address Access

By default, the Web interface, CLI and SNMP interface of the Webcache are available from any IP address on your network. If you have an address or set of addresses from which the Webcache will be managed you can restrict all management access only to those addresses.

You can restrict management of the Webcache by entering IP addresses that are allowed access at the *Access restricted to the following IP Addresses:* prompt. Enter a comma-separated list of IP addresses, an IP range or a combination of both. For example if you enter:

```
192.168.1.5, 192.168.1.6, 192.168.1.7
```

you will have allowed only these three addresses access to the management interfaces of the Webcache. You could have entered:

```
192.168.1.5-192.168.1.7
```

for the same outcome. You can combine address ranges and comma separated lists as below:

```
192.168.1.5-192.168.1.7, 192.168.1.23
```

to allow these four addresses access to the management interfaces of the Webcache. Up to four addresses or address ranges can be added.

***CAUTION:** If you do not include the IP address of your own computer in the list or range, you will no longer be able to administer the Webcache from your computer. If this occurs, you need to use the console port to access the Command Line Interface and use the* Security > Management *commands to change the restriction to the correct addresses.*

Restricting access does not change the caching operation of the Webcache. Only access to the management interfaces of the Webcache is affected.

Password Recovery

If you forget the password for the *admin* username, you will no longer be able to perform important management operations on the Webcache. Password Recovery allows you to define a new password for the *admin* username, even though you have forgotten the current one, and regain access to the management interfaces.

Enabling/Disabling Password Recovery

In order to perform password recovery, Password Recovery must be enabled on the Webcache.

Password Recovery is enabled by default on the Webcache. You will only need to complete the following steps if you want to check that password recovery is enabled, or if you know that it has previously been disabled.

You may want to disable password recovery if you are concerned about the security of the Webcache. When password recovery is enabled, anyone who has physical access to the Webcache can potentially change the password and lock you out of the management interfaces.

CAUTION: *3Com recommends that you leave Password Recovery enabled. If you disable it and subsequently forget the password for the* admin *username, you will have to return the Webcache to 3Com.*

To enable or disable Password Recovery using the Web interface:

1. Log in to the Web interface.
2. Click *Device* on the Toolbar.
3. Select *Security* > *Recovery* in the Navigation Tree. The Password Recovery screen is displayed.
4. Check *Enable Password Recovery Feature* to enable Password Recovery, or uncheck *Enable Password Recovery Feature* to disable it.
5. Click *OK*.

Performing Password Recovery

Use the password recovery method outlined below to define a new password for the *admin* username:

1. Access the Command Line Interface and enter the username “recover” and password “recover” to place the Webcache in password recovery mode. The Webcache remains in password recovery mode for a maximum of 30 seconds, before it returns to the CLI login prompt.
2. Reboot the Webcache whilst it is in password recovery mode by removing the power cord from the power socket at the rear of the Webcache and reinserting it.

   3Com recommends that you access the CLI in this instance by connecting a standard null-modem cable to the console port on the Webcache. Remove the power cord and then reinsert it to reboot the Webcache before the password recovery mode resets.

   You cannot use a soft reboot operation to reset the password of the admin *username. This will end the password recovery procedure and return you to the CLI login prompt.*
3. When the Webcache has rebooted enter a new password for the *admin* username.

4 Enter **`enable`** to leave password recovery enabled, or enter **`disable`** to turn it off. You are now logged in as the default *admin* user.

III CONFIGURING THE WEBCACHE

6 CONFIGURING DEPLOYMENT MODES

This chapter contains information about how to configure the various deployment modes of the Webcache:

- Configuring Transparent Cache Mode
- Configuring WCCP V1
- Configuring WCCP V2
- Configuring Proxy Relay with the SuperStack 3 Firewall
- Configuring Proxy Cache Mode
- Creating a Proxy Auto-configuration File
- Configuring Inline Cache Mode
- Configuring Parent Caching
- Configuring ICP Caching

For further information about each deployment mode, see the "Web Caching Concepts and Deployment" chapter on page 23.

Configuring Transparent Cache Mode

To configure Transparent Cache mode using the Web interface:

1 Log in to the Web interface.

2 Click *Caching* on the Toolbar.

3 Select *Set Caching Mode*. The Set the Webcache Deployment Mode screen is displayed.

4 Ensure that *Enable Transparent Mode* is checked.

5 In the *Transparent/Inline Mode Ports* field, enter a comma-separated list of all the ports that the Webcache will listen on.

For further information, see "Transparent Cache Deployment" on page 36.

Configuring WCCP V1

To configure WCCP V1 using the Web interface of the Webcache:

1 Log in to the Web interface.

2 Click *Caching* on the Toolbar.

3 Select *Set Caching Mode*. The Set the Webcache Deployment Mode screen is displayed.

4 Ensure that *Enable Transparent Mode* is checked and click *OK* to save this information.

5 Select *WCCP Setup* in the Navigation Tree. The WCCP Setup wizard is displayed.

6 Check *Enable WCCP.*

7 Select *WCCP V1.0*.

8 Enter the IP address of the Cisco router that will redirect traffic to the Webcache in the *Router IP Address* field and click *Next*.

9 The Finish screen is displayed. Carefully read the summary information, which displays the WCCP version and Router IP Address that you have selected. Click *Finish*.

You should repeat this configuration process for each additional Webcache that you want the Cisco router to operate with.

*If the Webcache is deployed in WCCP mode, you must use port 8081 to access the Webcache's Web interface e.g. http://192.168.1.253:**8081**. If you use port 80, you may experience problems accessing the Web interface.*

For further information, see "WCCP Version 1" on page 43.

Configuring WCCP V2

To configure WCCP V2 using the Web interface of the Webcache:

1. Log in to the Web interface.
2. Click *Caching* on the Toolbar.
3. Select *Set Caching Mode*. The Set the Webcache Deployment Mode screen is displayed.
4. Ensure that *Enable Transparent Mode* is checked and click *OK* to save this information.
5. Select *WCCP Setup* in the Navigation Tree. The WCCP Setup wizard is displayed.
6. Check *Enable WCCP*.
7. Select *WCCP V2.0*.
8. In the *Router IP Address List or Multicast Address* field enter either:
   - A comma separated list of up to 10 Cisco routers that support WCCP V2 which will form a service group with the Webcache

     or
   - A single IP multicast address that the Webcache will use to declare itself to Cisco routers in your network that support WCCP V2.

   Click *Next*.
9. Select which protocols will be redirected to the Webcache by the WCCP-enabled Cisco router by checking *HTTP (port 80)* and/or *FTP*. You must choose at least one of the available protocols.
10. Check *Enable WCCP Password Authentication*. This allows you to enter a password that is used by the Webcache and the Cisco routers to authenticate the redirection of Web requests. The routers will only redirect the traffic if the Webcache provides the correct password.

11 Enter the authentication password used by the routers in the *Password* field. Enter it again in the *Confirm* field. The password must be 8 characters or less and is case-sensitive. Click *Next*.

12 The Finish screen is displayed. Carefully read the summary information, which displays the WCCP version, Router IP Addresses or Multicast Address and whether WCCP Password Authentication is enabled or disabled. Click *Finish*.

You should repeat this configuration process for each additional Webcache that you want to include in the service group.

*If the Webcache is deployed in WCCP mode, you must use port 8081 to access the Webcache's Web interface e.g. http://192.168.1.253:**8081**. If you use port 80, you may experience problems accessing the Web interface.*

For further information about configuring the Cisco routers for WCCP using the Cisco Command Line Interface, see the "Default Settings for the Webcache" appendix on page 307.

For further information, see "WCCP Version 2" on page 43.

Configuring Proxy Relay with the SuperStack 3 Firewall

To configure Proxy Relay mode using the Web interface of the Webcache:

1 Install the Webcache as described in Chapter 2 "Installing the Webcache", taking into account any safety information.

a Connect the Webcache to the DMZ port of the Firewall. Use the LAN port of the Webcache for this connection.

Network Address Translation (NAT) does not apply to the DMZ port of the Firewall so you will need to configure the Webcache with a registered IP address.

b Set the Webcache to *Proxy Mode*. This setting can be made from the *Getting Started Wizard* or by selecting *Caching > Set Caching Mode* from the Web interface.

c In the *Proxy Mode Ports* field enter the number `8080`. This is the default proxy relay TCP port number. You can enter a different TCP port number if you wish.

You should not enter multiple proxy relay TCP port numbers as the SuperStack 3 Firewall redirects one TCP port number only (8080 by default). If you configure multiple proxy relay TCP port numbers on the Webcache, only the single port that you also configure on the Firewall will be operational.

d Enable *Web Site Blocking* on the Webcache in preference to the Firewall, as the Webcache has more advanced filtering abilities and is able to use the 3Com Web Site Filter (3C16118) if installed.

2 Install the Firewall according to the SuperStack 3 Firewall User Guide (DUA1611-0AAA0x) taking into account any safety information.

a On the Web interface of the Firewall click *Advanced* then *Proxy Relay*.

b In the *Proxy Web Server Address* field enter the IP address of your Webcache.

c In the *Proxy Web Server Port* field enter the proxy relay TCP port number that you selected in step 1c (port 8080 by default).

d Click *Update* to save your changes.

3 No configuration is necessary on the client machines. The Firewall will intercept any HTTP requests for external URLs and will forward the traffic to the Webcache.

For further information, see "Proxy Relay Deployment" on page 44.

Configuring Proxy Cache Mode

To configure Proxy Cache mode using the Web interface:

1 Log in to the Web interface.

2 Click *Caching* on the Toolbar.

3 Select *Set Caching Mode*. The Set the Webcache Deployment Mode screen is displayed.

4 In the *Proxy Mode Ports* field, enter a comma-separated list of all the ports that the Webcache will listen on. The default TCP port is 8080.

For further information, see "Proxy Cache Deployment" on page 45.

Creating a Proxy Auto-configuration File

You can use the Browser Auto-Configuration screen to create a PAC file which is stored on the Webcache or a network server. You can configure the PAC file to:

- Select the protocols that the Web browsers on client machines should direct to the Webcache
- Bypass the Webcache for plain host names
- Distribute Web requests from client machines between up to four Webcaches to achieve higher performance and resiliency

For further information, see "Proxy Auto Configuration (PAC) Files" on page 48.

Using the Webcache as a PAC File Server

To use the Webcache as a PAC file server, first configure the Webcache PAC file using the Browser Auto-Configuration screen:

1. Log in to the Web interface.
2. Click *Caching* on the Toolbar.
3. Select *Browser Auto-Config* in the Navigation Tree.
4. Select the protocols that the Web browsers on client machines should direct to the Webcache by checking *HTTP (port 80 only)* or *File Transfer Protocol* or both options.
5. Check *Bypass Plain Host Names* if you want to configure Web browsers to bypass the Webcache for plain host names. These are typically domain names which do not contain dots, commonly used for Intranet sites e.g. `http://intranet`
6. You can enter the IP addresses and port numbers of up to three additional Webcaches in your network. Web browsers on client machines will then distribute their requests between all of the available Webcaches that you have specified.

   The IP address and first port number of the current Webcache is displayed by default.

   Leave the *Additional Webcache* fields blank if you only have a single Webcache in your network.

   For each additional Webcache, enter the IP address in the *Webcache Name/IP Address* field and the port number on which each Webcache will be listening in proxy mode for network traffic in the *Port* field.

You can only specify a single port number in the Port field for load balancing, even though you can enter up to 10 Proxy mode port numbers in the Set the Webcache Deployment Mode screen.

If you wish to use the PAC file on a network server, click Save. *The* File Download *screen is displayed. Select* Save this file to disk *and enter a filename and location to save the file to.*

Configuring the Client Web Browser

You must next set the Web browser to read the PAC file for its settings.

To set Internet Explorer 5:

1. Open Internet Explorer.
2. From the *Tools* menu, click *Internet Options*.
3. Click the *Connections* tab.
4. Click *LAN Settings*.
5. Check *Use automatic configuration script*.
6. Enter the URL or location of the Webcache PAC file in the *Address* field in either of the following formats:

   `http://nnn.nnn.nnn.nnn:8082`

   or

   `http://nnn.nnn.nnn.nnn/config/proxy.pac`

   where **`nnn.nnn.nnn.nnn`** is the IP address or DNS name of the Webcache.
7. Click *OK*.

To set Netscape Navigator 4.5:

1. Open Netscape Navigator.
2. From the *Edit* menu, click *Preferences*.
3. Click the *Advanced* category and click *Proxies*.
4. Select *Automatic Proxy Configuration*.
5. Enter the URL or location of the Webcache PAC file in the *Configuration location* field in either of the following formats:

   `http://nnn.nnn.nnn.nnn:8082`

   or

   `http://nnn.nnn.nnn.nnn/config/proxy.pac`

   where **`nnn.nnn.nnn.nnn`** is the IP address or DNS name of the Webcache.
6. Click *Reload*.
7. Click *OK*.

Configuring Inline Cache Mode

To configure Inline Cache mode using the Web interface:

1. Log in to the Web interface.
2. Click *Caching* on the Toolbar.
3. Select *Set Caching Mode*. The Set the Webcache Deployment Mode screen is displayed.
4. Ensure that *Enable Inline Mode* is checked.
5. In the *Transparent/Inline Mode Ports* field, enter a comma-separated list of all the ports that the Webcache will listen on.

   For further information, see "Inline Cache Deployment" on page 52.

Configuring Parent Caching

To enable and configure Parent Caching using the Web interface:

1. Log in to the Web interface.
2. Click *Caching* on the Toolbar.
3. Select *Parent Caches* > *Setup Parent Caches* in the Navigation Tree.
4. Check *Enable Parent Proxy Caches*.
5. Select whether the Web browsers on client machines should direct FTP requests to the Webcache by checking *Use Parent Caches for File Transfer Protocol (FTP)*. HTTP requests are automatically forwarded.
6. You can enter the DNS names or IP addresses and port numbers of up to four parent Webcaches in your network. The child Webcache will then distribute its cache misses between all of the available Webcaches that you have specified. For each additional Webcache, enter the IP address or DNS name in the *Parent Cache Name/IP Address* field and the port number on which each Webcache will be listening for network traffic in the *Proxy Port* field.

   For further information, see "Parent Caching" on page 53.

Creating a Parent Cache Exclusion List

You can create a list of the domain names, IP addresses and IP address ranges that you want to prevent from being forwarded to the parent Webcaches in the following ways:

- Manually entering each Web site, IP address and IP address range in the Edit Exclude List screen.
- Loading an existing list of Web sites, IP addresses and IP address ranges from an external text file in the Load Exclude List screen.
- A combination of the above methods.

The subnet local to the Webcache is automatically added to the Parent Cache Exclusion List as content can usually be fetched faster from origin servers than parent caches in this case.

Manually Editing the Parent Cache Exclusion List

To manually enter a Web site, IP address or IP address range in the Parent Cache Exclusion List:

1. Log in to the Web interface.
2. Click *Caching* on the Toolbar.

3 Select *Parent Caches* > *Edit Exclude List* in the Navigation Tree.

4 In the *Enter the Domain Name, IP Address or IP Address Range* field, enter the domain name, IP address or IP address range to add to the list and click *Add*. Repeat this for each entry that you want to prevent from being forwarded to the parent Webcaches.

Example

You can enter **`yahoo.com`** to prevent that entire domain from being forwarded, or enter **`auctions.yahoo.com`** to prevent that subdomain.

You can enter **`216.115.0.0-216.115.255.255`** to prevent that IP address range from being forwarded, or enter **`216.115.105.2`** to prevent that specific IP address.

You must follow all of the rules listed in the "Domain Name System Syntax" section on page 28 when adding an entry to the Parent Cache Exclusion List.

5 If you want to remove an entry from the list, click on an entry in the list and click *Remove*. To delete all entries at once, click *Remove All*.

Loading Entries From a File Into the Parent Cache Exclusion List

To load a list of Web sites, IP addresses and IP address ranges into the Parent Cache Exclusion List:

1 Log in to the Web interface.

2 Click *Caching* on the Toolbar.

3 Select *Parent Caches* > *Load Exclude List* in the Navigation Tree.

4 In the *Name of File To Load* field enter the full pathname of the file that you want to load.

You can also click *Browse* to search for the location of a file.

5 Select *Replace the Current Parent Cache Exclusion List* to replace the current Parent Cache Exclude List with the list of Web sites, IP addresses and IP address ranges in the file that you are loading, or select *Merge with the Current Parent Cache Exclusion List* to merge the two lists together.

You should choose to replace the current list if you have a complete list of entries in an external file that you want to use to overwrite the list on the Webcache.

You should choose to merge with the current list if you have a partial list of entries in an external file that you want to add to the list on the Webcache.

6 Select *Load* to load the new list.

Loading a list may take a few seconds to complete, depending on the number of entries being loaded.

List Rules

There are certain rules that you must follow when loading a list of Web sites, IP addresses and IP address ranges into the Parent Cache Exclusion List. The file must be a plain text file with the following restrictions:

- Each entry must be on a separate line.
- Each line in the file must not exceed 75 characters in length.
- Blank lines are ignored.
- There must be no spaces at the beginning of a line.
- The Parent Cache Exclusion List can contain a maximum of 900 entries. If loading the file results in more than 900 entries in the Parent Cache Exclusion List, all subsequent entries after the limit has been reached will not be loaded into the List.

You must also follow all of the rules listed in the "Domain Name System Syntax" section on page 28.

Saving the Parent Cache Exclusion List

You can save the current Parent Cache Exclusion List to an external text file. This allows you to modify and then load the file back onto the Webcache using the *Load Exclude List* command, or to load and re-use the list on another Webcache.

To save the Parent Cache Exclusion List:

1 Log in to the Web interface.

2 Click *Caching* on the Toolbar.

3 Select *Parent Caches* > *Save Exclude List* in the Navigation Tree.

4 Click *Save*.

5 The File Download screen is displayed. Select *Save this file to disk* and enter a filename and location to save the file to.

Saving a list may take a few seconds to complete, depending on the number of entries being loaded.

Clearing the Parent Cache Exclusion List

You can use the Clear Exclude List screen to delete all the current entries in the Parent Cache Exclusion List.

To clear the Parent Cache Exclusion List:

1. Log in to the Web interface.
2. Click *Caching* on the Toolbar.
3. Select *Parent Caches* > *Clear Exclude List* in the Navigation Tree.
4. Click *OK* to clear the Parent Cache Exclusion List.

Configuring ICP Caching

In addition to Parent Caching the Webcache supports ICP Caching. This is an older and more error-prone protocol but is supported by a wide variety of legacy devices.

3Com recommends that you use Parent Caching in preference to ICP Caching unless you have an existing network of ICP caches that you wish to maintain.

To enable and configure ICP Caching:

1. Log in to the Web interface.
2. Click *Caching* on the Toolbar.
3. Select *ICP Control* > *Setup ICP* in the Navigation Tree.
4. Ensure that the *Enable ICP* box is checked.
5. Set the *ICP Mode* to:
   - *Only Receive Queries* — if the Webcache is only to be used as a top-level cache with no peers, that is if the Webcache will not have to query any other caches.

   If configured to Only Receive Queries, the Webcache will respond to incoming ICP requests from other cache devices, but will never initiate any. If the Webcache does not have the requested content it will go directly to the origin server or to a Parent Cache depending on its configuration. This can be a useful setting when adding a Webcache to an existing legacy ICP environment.

   - *Send/Receive Queries* — if the Webcache is not the top-level cache or if the Webcache is the top-level cache but has peer caches, that is if the Webcache needs to query a parent or peer before responding to the client.

   If configured to Send and Receive Queries, the Webcache will act as a full ICP cache. If the Webcache does not have the requested content it will query any other caches defined in the ICP peer list before going directly to the origin server or to an configured Parent Caches

6. Set *ICP Port* to the port number on which you want your Webcache to listen for ICP communication.

The standard ICP port number is 3130 and should not be changed unless the Webcache is being used in conjunction with other devices that require a different port number.

7 Set *ICP Query Timeout (seconds)* to the length of time you want to Webcache to wait for a response. The default is *5* seconds.

8 If you have a multicast address configured to send out the ICP packets enable, ensure that the *Enable ICP Multicast* box is checked and enter the multicast address in the *Multicast IP box*. Otherwise ensure that the *Enable ICP Multicast* box is cleared.

9 Click *OK*.

CAUTION: *Even if your Webcache is a top-level ICP cache with no siblings, you must still add its children to the list of ICP peers. If you do not, the it will not respond to their ICP requests.*

Adding ICP Peers

To add ICP peers:

1 Log in to the Web interface.

2 Click *Caching* on the Toolbar.

3 Select *ICP Control* > *Edit ICP Peers* in the Navigation Tree.

4 Enter the IP address of another cache in the *ICP Peer IP Address* box.

5 Enter the TCP port on which the other cache listens for HTTP traffic in the *ICP Proxy Port* box.

6 Select the relationship the other cache has to your Webcache from the *Type* drop-down box. Choose *Parent* if the other cache is above your Webcache in the caching hierarchy, *Sibling/Child* if it is an equal peer or below your Webcache in the ICP hierarchy.

7 Enter the TCP port on which the other cache listens for ICP traffic in the *ICP Port* box.

8 Click *Add* to add the cache to your Webcache's hierarchy.

9 Repeat from step 4 to add more ICP peers.

You must add all ICP peers to this list including those that query the Webcache. If you do not, the Webcache will not respond to their ICP requests.

Deleting ICP Peers

To delete ICP peers:

1. Log in to the Web interface.
2. Click *Caching* on the Toolbar.
3. Select *ICP Control* > *Edit ICP Peers* in the Navigation Tree.
4. Select the peer that you want to delete form the table at the bottom of the window.
5. Click *Remove* to delete the listed peers or *Remove All* to delete all of the listed peers. The Webcache will no longer make ICP requests to this peer.

7 STATIC ROUTES

This chapter contains information about the concepts of static routing and how to configure static routes on the Webcache. It covers the following topics:

- What are Static Routes?
- Static Routes Example
- Advantages of Static Routes
- Configuring Static Routes

What are Static Routes?

Routes to remote networks are typically obtained dynamically through routing protocols. However, you can also choose to provide routes manually. These routes are referred to as Static Routes. A static route is associated with an interface that represents the remote network. Unlike dynamic routes, static routes are retained even if the router is restarted or the interface is disabled.

Static routes are important for web caching because they allow you to specify different default routers for particular networks or hosts. The default router for the Webcache can sometimes be entirely the wrong router to use for a particular network or server. Static routes provide greater flexibility in transparent and inline deployments of the Webcache within your network.

You can configure a static route on the Webcache by entering the IP address and subnet mask of the remote network and the IP address of the router for that network.

Static Routes Example

Static routes are essential in the following scenario:

- The Webcache is deployed in Transparent mode with a SuperStack 3 Switch 4400.

  For further information, see "Deploying the SuperStack 3 Switch 4400, 4924 or 4950 with the Webcache" on page 38.
- The default router is on the WAN side of the Switch.
- There is also a LAN-side server.

A request comes from the WAN to the Webcache for the LAN-side server. If the request is a cache miss the Webcache has to retrieve the content from the LAN-side server. To do this it sends a GET request to the default router with the expectation that the packet will be routed to the LAN side server.

However, the route to the LAN-side server from the default router is through the Switch 4400. Subsequently the request is sent from the default router to the Switch 4400 and is then again redirected to the Webcache. The packet becomes trapped in an endless loop between the Webcache, the default router and the Switch 4400, resulting in no connectivity and eventually failure of the request.

The solution in this scenario is to enter a static route on the Webcache to use a LAN-side router for all requests destined for the LAN-side server. When the Webcache processes the cache miss, instead of passing the packet to the default router, it sends it to the LAN-side router which has direct connectivity to the LAN-side server. Everything now functions as expected.

Advantages of Static Routes

Static routing has the following advantages over dynamic routing:

- **Predictability** — The path a packet takes between two destinations is always known precisely because you compute the route that the packet takes in advance. With dynamic routing, the path taken depends on which devices and links are functioning, and how the routers interpret the updates from other routers.
- **Less Overhead** — Static routing does not impose any overhead on the routers or the network links because no dynamic routing protocol is required. This overhead could amount to a significant portion of network bandwidth on a low-speed dial-up link. In a network with 200 network segments, every 30 seconds, as required by the RIP specification, all the routers send an update containing reachability information for all 200 of these segments. With each route taking 16 octets of space, plus a small amount of overhead, the minimum size for an update in this network is over three kilobytes. Each router must therefore send a 3KB update on each of its interfaces every 30 seconds. For a large network, the bandwidth devoted to routing updates can quickly add up.

In addition to Static Routes, the Webcache also listens to and respects ICMP redirect messages directed to it from routers on your network.

Configuring Static Routes

To configure static routes using the Web interface:

1. Log in to the Web interface.
2. Click *Device* on the Toolbar.
3. Select *System* > *Protocol* > *Static Routes*. The Static Routes screen is displayed.
4. Enter the IP address of the network that you are creating a static route for in the *IP Address* field.

5 Enter the subnet mask of the network that you are creating a static route for in the *Subnet Mask* field.

6 Enter the IP address of the router for the static route in the *Gateway* field.

7 Select the *Add* button to create the static route. All of the currently defined static routes are displayed in the list at the bottom of the screen.

If you want to remove an entry from the list, click on an entry in the list and click *Remove*. To delete more than one entry at a time, hold down *Ctrl*, click on the entries that you want to delete and then click *Remove*. To delete all entries at once, click *Remove All*.

8 System Time

This chapter explains how to configure the system time of the Webcache. It contains the following topics:

- Configuring the System Time
- Network Time Protocol
- Configuring the System Time Using the Network Time Protocol
- Configuring the System Time Manually
- System Time and Performance Graphs

Configuring the System Time

You must select how the Webcache determines the current time during the Getting Started wizard, which automatically runs when you first access the Webcache's Web interface.

You can change how the Webcache determines the current time at any point using the Time Configuration wizard. Select *Device* from the Toolbar, then *System > Management > Time Configuration* in the Navigation Tree to access the wizard.

You can configure the system time in either of the following ways:

- Configuring the System Time Using the Network Time Protocol — for further information, see page 134
- Configuring the System Time Manually — for further information, see page 134.

3Com recommends that you use the Network Time Protocol to configure the system time of the Webcache.

Network Time Protocol

The Network Time Protocol (NTP) is used to synchronize the time of client machines and servers with other well-known, highly accurate servers or reference time sources. It maintains a consistent Coordinated Universal Time (UTC) within your network which is far more accurate than the internal system clocks of client machines and prevents time drift from occurring on the Webcache.

NTP provides client machine and server time accuracies typically within a millisecond on LANs, relative to a primary NTP server synchronized to UTC via a Global Positioning Service (GPS) receiver. Such accurate time-keeping is an essential part of the operation of the Webcache.

NTP will only operate correctly if the Webcache can communicate with the NTP server. The Webcache time will not be changed by the NTP server if the two devices cannot communicate with each other, and will instead simply rely on the internal clock and the last manually configured time. Ensure that traffic on TCP port 123 is not blocked by a Firewall between the Webcache and the NTP server.

Choosing a Network Time Protocol Server

You can choose to use one of the many public NTP servers that are available on the Internet or set up your own NTP server. When you have access to an NTP server, you can configure the Webcache to determine the current time using NTP; see "Configuring the System Time Using the Network Time Protocol" on page 134 for further information.

Public NTP servers are grouped into *stratums*. The NTP primary (stratum 1) servers are connected to a reference clock, which is typically an expensive cesium clock or cheaper GPS receiver. Servers operating at stratum 1 are the most accurate available, but also the fewest in number because of the prohibitive cost of reference clocks.

The NTP secondary (stratum 2) servers are in turn connected to a stratum 1 server and are therefore less accurate but greater in number. Stratum 3 servers are connected to stratum 2 servers, and so on, up to an imposed limit of 15 strata. You should not use a high level public stratum server because of their limited number and because the load placed on them is increasingly heavy.

For a list of well known NTP servers available for public use, view the Microsoft Knowledge Base at:

`http://search.support.microsoft.com/kb/c.asp`
(correct at time of publishing)

and search for the article ID number **`Q262680`**, or enter the following URL in your Web browser:

`http://www.eecis.udel.edu/~mills/ntp/servers.htm`
(correct at time of publishing)

3Com recommends that if your network has an internal NTP server, you should use this rather than a public stratum server. If not, you should use the lowest stratum public NTP server available to you.

Configuring the System Time Using the Network Time Protocol

To configure the system time of the Webcache using the Network Time Protocol, you must enter the following information in the Getting Started wizard or Time Configuration command in the Web interface:

1 Select a timezone from the options in the *Timezone* drop-down list.

The Webcache automatically performs daylight savings adjustments according to the timezone that you have selected.

2 Choose *Network Time Protocol* by clicking the appropriate radio button.

3 Enter the IP addresses of the primary and secondary NTP servers that you want to use in the *Primary NTP IP Address* and *Secondary NTP IP Address* fields. You should enter two NTP servers if possible to ensure that at least one is available when the Webcache wishes to set the time.

If you enter primary and secondary NTP server addresses and both are available, the Webcache automatically uses the server that has proven to be the most reliably available to serve NTP requests.

Configuring the System Time Manually

To manually configure the system time of the Webcache, you must enter the following information in the Getting Started wizard or Time Configuration command in the Web interface:

1 Select a timezone from the options in the *Timezone* drop-down list.

The Webcache automatically performs daylight savings adjustments according to the timezone that you have selected.

2 Choose *Manual Time Configuration* by clicking the appropriate radio button.

3 Enter the current day, month, year and the current time (in 24 hour clock format) in the appropriate fields.

4 Click *Apply Now* or *OK* as soon as you have manually entered this information to ensure the greatest accuracy.

If you set the time manually, the Webcache may take a few seconds to be updated.

If you change the system time of the Webcache manually, some access log analysis tools e.g. Webtrends may discard entries in the access log. This is due to the time changes that occur within the access log following the system time change.

System Time and Performance Graphs

When the system time of the Webcache is set manually, all of the current Performance Graphs are reset and all previous graph history is lost. You should therefore only change the system time when it is absolutely necessary. The following system time changes affect the Performance Graphs in this way:

- The system time is manually configured.
- The system time is changed from Network Time Protocol to Manual Time Configuration, or vice versa.
- The IP address of the Network Time Protocol server is changed.

A Warning screen appears asking if you want to continue with the system time change. Click *Yes* to continue and reset the Performance Graphs, or *No* to cancel the change.

IV CONTROLLING AND MONITORING WEB ACCESS

9 MONITORING WEB ACCESS

This chapter contains information about controlling and monitoring the access of the users of your network through the Webcache to the Internet. It covers the following topics:

- Access Logging
- Filter Logging
- Storing the Log Files
- Viewing the Access Log
- Analyzing the Access Log
- Viewing the Filter Log

Access Logging

Access Logging allows you to track which client machines have accessed which Web sites through the Webcache. You can configure the Webcache to log all Web accesses. Access Logging and the Squid access log format are enabled by default but if you want to change the log format do the following:

1. Log in to the Web interface.
2. Click *Caching* on the Toolbar.
3. Select *Setup Access Log* in the Navigation Tree.
4. Select one of the five access log formats:
   - Squid (default)
   - WebTrends Extended (WELF)
   - Netscape Common
   - Netscape Extended
   - Netscape Extended 2

You can view the last 256 lines of the Access Log using the *View Access Log* command; for further information, see "Viewing the Access Log" on page 142.

To disable Access Logging, simply un-check the *Enable Web Access Logging* box from the *Setup Access Log* screen and click *OK*.

The Squid format is the most widely supported by log analysis tools. If you are using WebTrends Firewall Suite to analyze the Webcache's access logs, you should always use the WebTrends Extended Log Format (WELF) for additional Web access information.

Filter Logging

The Filter Log stores information about clients who try to access blocked sites, and the reason why the request has or would have been blocked. See "Filter Logging" on page 159.

Storing the Log Files

You can specify an FTP server to which you want to periodically save the log files. If this option is enabled, both the access and filter logs are offloaded to the FTP server whenever any log file reaches 250 MB in size, or every 24 hours, whichever comes first. You can see a complete history of every Web request made through the Webcache and every Web request filtered, by combining the FTP logs. By default, the saved access logs are based on the standard Squid access log format and can be analyzed using off-the-shelf log analysis tools.

When the logs are offloaded both the Access Log and the Filter Log will be saved. See Chapter 10 *for more information about the Filter Log.*

An SNMP trap is automatically generated if the Webcache fails to save the access or filter log to the FTP server.

To set up the Webcache for use with an FTP server:

1 Log in to the Web interface.

2 Click *Device* on the Toolbar.

3 Select *System* > *Management* > *Log Offload* in the Navigation Tree.

4 Check *Enable Log Offload to FTP Server.*

5 In the *FTP Server Address* field, enter the Domain Name Server (DNS) name or IP address of the FTP server that you want to save the access logs to.

6 In the *Directory* field, enter the full path within the FTP server to which you want to save the log files.

The directory can only contain alphanumeric and "**`/`**", "**`.`**", "**`-`**" or "_" characters and can only be up to 32 characters in length.

If you are using a Windows based FTP server you cannot specify drive letters e.g. **`C:`** or **`my_drive:`**. You must configure your FTP server so that the FTP account that you specify in the *Directory* field has your desired drive letter as its login.

7 In the *Username* field, enter the user name for the FTP server to which you want to save the log files.

8 In the *Password* field, enter the password for the username entered in step 7. The password must be between 1 and 32 characters in length.

When a password has been set, `**********` *is displayed in the* Password *field, regardless of how many characters the password actually has. You can change the password by clicking* Change Password *and entering the new password.*

9 If you want to test and upload the log files now, click *FTP Now*. Enter a filename for the log and click *OK*. The filename can only contain alphanumeric and **.** (dot), **-** (hyphen) or _ (underscore) characters and can only be up to 32 characters in length.

Clicking *FTP Now* will immediately send the currently active Access Log to the FTP server. This allows you to test your FTP settings or to save the Access Log without waiting for the next automatic FTP.

If no entries have been made in the logs when you click FTP Now*, an empty log file will be saved on the FTP server.*

Viewing the Access Log

To view the Access Log using the Web interface:

1 Log in to the Web interface.

2 Click *Caching* on the Toolbar.

3 Select *View Access Log* in the Navigation Tree.

The last 256 lines of the Access Log are displayed, with the most recent information shown at the bottom of the log.

4 Click *Refresh* to update the displayed information.

If the Webcache is deployed in Proxy mode, multiple entries for the pages in the Web interface itself will be made in the Access Log. This is standard behavior for the Webcache, as it is "seeing" the requests for the Web interface pages and logging these requests in the Access Log. You should either leave the Web Interface open for only short periods of time to reduce the entries made, or use a log analyzer tool such as Webtrends to view and analyze the Access Log.

Analyzing the Access Log

The access logs that have been saved on the FTP server are by default based on the native Squid Log format. This is optimized for efficient generation and can be analyzed using a wide variety of off-the-shelf log analysis tools.

3Com recommends that you select the Webtrends Extended Log Format (WELF) option and use Webtrends Log Analyzer or WebTrends Firewall Suite to analyze the access logs that the Webcache produces:

`http://www.webtrends.com`
(correct at time of publication)

Calamaris is a free open source tool available from the following URL:

`http://calamaris.cord.de`
(correct at time of publication)

All three Netscape format log files can be analyzed by Netscape's program Flexanlg, which is distributed with Netscape Web and Proxy Servers beginning with version 2.0.

Viewing the Filter Log

The *View Filter Log* command displays the last 256 entries registered by the Filter Log.

To view the Filter Log:

1. Log in to the Web interface.
2. Click *Content Filter* on the Toolbar.
3. Select *Webcache Filtering* > *View Filter Log* in the Navigation Tree.

   Click on *Refresh* to clear the Filter Log, or *Finish* to close the Filter Log.

10 Using Content Filtering

This chapter explains how to use the Webcache to control and monitor access to the Internet from your network. It covers the following topics:

- Introducing Content Filtering
- 3Com Web Site Filter
- Websense Enterprise Filtering
- Manual Content Filtering
- Default Rule
- Filter Logging
- Web Client Blocking
- Filter Exclusions
- Setting Up Allow Lists and Deny Lists
- Keyword Blocking
- Customizing the Content Filter Response Screen

Introducing Content Filtering

The Webcache is able to stop users from accessing inappropriate Web sites by using Content Filtering. The benefits of managing the Web sites that can and cannot be accessed include:

- Increased productivity.
- Decreased legal liability.
- Improved network performance.

The list of sites used to allow or deny access can be automatically loaded using the 3Com SuperStack Web Site Filter and entered by hand using the Allow and Deny lists of the Webcache. Alternatively control for filtering Web sites can be passed to an external server which incorporates a Websense Enterprise filter.

The Webcache can also log those users attempting to access the sites that you have restricted either as an alternative to blocking or in addition to blocking the users from restricted sites. See “Filter Logging” on page 159.

Understanding Content Filtering Modes

There are three types of filtering modes available: 3Com Web Site Filtering, Websense Enterprise filtering, and Manual Content Filtering.

- 3Com Web Site Filtering is a subscription-based service that downloads a list of millions of categorized Web sites to your Webcache from a 3Com server on the Internet. This list allows the Webcache to block some or all of millions of Web sites by selecting from twenty categories.

  The 3Com Web Site Filtering service offers improved business productivity, reduced legal and privacy risks with little configuration and minimal administrative overhead. The key advantage of the 3Com Web Site Filtering service is that it is performed on the Webcache itself, without the need to administer an external server with third party software, sourced from different suppliers. The filter is activated by registering a license key at `http://www.3com.com/register` to enable the service, then simply defining what content categories are deemed unacceptable.

  With 3Com Web Site Filtering enabled, you can create filter policies that are checked before deciding whether to allow or deny a web request. These policies can be scheduled so that the different subsets of the categories can be applied at different times and on different days. In addition to the sites included in the Web Site Filter you can manually customize the list. See "3Com Web Site Filter" on page 147.

- Websense Enterprise filtering enables your Webcache to interoperate with a Websense Enterprise server on your network. Each Web request that arrives at the Webcache is sent to the Websense server to determine whether the request should be allowed or denied. This server must be administered separately to the Webcache. See "Websense Enterprise Filtering" on page 155.
- Manual Content Filtering requires you to enter IP addresses, Domain Names and Keywords to determine what Web sites can be accessed. By setting up Allow and Deny Lists, Filtering Exclusions, Keyword Blocking and Web Client Blocking, you can control Internet access in your organisation. See "Manual Content Filtering" on page 157.

3Com Web Site Filter

The 3Com Web Site Filter (3C16118) provides the Webcache with advanced Content Filtering capabilities. It provides your Webcache with a content filter list containing millions of Web sites, each assigned to appropriate categories, that might be deemed unsuitable for business use. The latest Web Site Filter can be downloaded on a user scheduled, regular basis.

If you are using the Web Site Filter and your Webcache fails, you can transfer the Web Site Filter license to a replacement Webcache. You must first raise a Return Materials Authorization (RMA) with 3Com for your failed Webcache. This will release any registered Web Site Filter license keys allowing you to re-register them against the replacement product. See "Returning Products for Repair" on page 305.

With the Web Site Filter loaded onto the Webcache, you can determine which Web site categories are made accessible to the organisation by setting up a filtering policy. A filtering policy not only determines which Web sites are filtered but also specifies the time of day and days of the week when the filtering is applied to suit the needs and requirements of the organisation.

When you configure your Webcache to use Manual Filtering or the 3Com Web Site Filtering service, the Websense Enterprise filtering commands on the Webcache are disabled.

When a client computer attempts to access a Web site, the Webcache applies the following rules in the order listed:

1 Web Client Blocking — If Web Client Blocking has been activated the Webcache checks to see if the client is on the Web Client Blocking List. Unauthorized clients will be filtered. See "Web Client Blocking"on page 161 for more information.

2 Filter Exclusion — The Webcache checks to see if the client is on the Filter Exclusion list. For authorized clients, further rules will be bypassed and the clients granted access to the Website. See "Filter Exclusions" on page 166 for more information.

3 Allow and Deny Lists — The Webcache checks to see if the Web site being accessed has been expressly allowed or blocked (denied) by an administrator. If the Web site is on the Allow List, the user is granted access. If it is on the Deny List the access is blocked. If the site is not listed then the Webcache looks at the next rule. See "Setting Up Allow Lists and Deny Lists" on page 169 for more information.

If a domain name appears in both the Allow *and* Deny Lists *then it will be denied. To stop the site from being denied, remove it from the* Deny List.

4 Keyword Blocking — The Webcache checks all the entries in the Keyword Blocking list against the URL of the Web site for a partial match. If a partial or complete match is found then the site is filtered, otherwise the Webcache continues with the next rule. See "Keyword Blocking" on page 174 for more information.

It is important to use caution when adding keywords to the Keyword Blocking list as you may filter sites other than you intend. For example, blocking the word breast may filter sites on breast cancer as well as objectionable or pornographic sites.

5 Web Site Filter Subscription Status — If the Web Site Filter is enabled but its subscription has expired then the Webcache will filter according to the Default Rule (*Allow All* or *Deny All*) otherwise it will continue with the next rule. See "Default Rule" on page 159 for more information about the Default Rule.

6 3Com Web Site Filter — The Webcache compares the Web site against all the sites in the categories that are in the currently active Filter Policy. See below for setup and configuration information and "Setting Up Filtering Policies" on page 152 for information on the Web Site Filter Categories.

Registering the Webcache

Before activating the 30 day free subscription to the 3Com Web Site Filter you must register the Webcache.

Registration also:

- Provides access to the latest Webcache software (at time of registration).
- Activates the warranty. See the warranty flyer supplied with your Webcache for details.

To register your Webcache:

1. Go to the Webcache's registration page:

   `http://www.3com.com/register`

2. Click on the *Webcaches and Web Site Filter* link.
3. Click the *Register Webcache* link.
4. Enter your details and the Webcache serial number.

   The Webcache serial number is printed on the rear of the Webcache and is also displayed in the Webcache Web interface Device Summary table.

5. Click *Register.*

   After a short while, a message confirming the registration and ability to activate the 30 day trial Web Site Filter will be displayed in the Web browser window.

Activating the Web Site Filter

When you register the Webcache you may activate a 30 day free subscription to the 3Com Web Site Filter. Activating the 30 day trial enables you to immediately download the Web Site Filter from 3Com's servers. To extend the use of the 3Com Web Site Filter you need to purchase Web Site Filter licenses from your 3Com reseller.

3Com will send you an email when your Web Site Filter license is about to expire. If your Web Site Filter license does expire, the 3Com Web Site Filter will continue to operate using the most recently downloaded list for 30 days. When this grace period expires and if you have configured the Webcache with *Email notification*, the Webcache will send you an email informing you that the Web Site Filter has expired, and the 3Com Web Site Filter will be disabled. The Webcache will then operate using the

Default Rule as described in "Setting the Default Rule" on page 159. In this case:

- All existing blocking log files will be deleted.
- All downloaded filter files will be deleted from the Webcache hard drives.

You need to register the Webcache before you can make use of the 3Com Web Site Filter license or the free 30 day trial.

To activate the Web Site Filter:

1. Go to the Webcache's registration page:

   `http://www.3com.com/register`

2. Click on the *Webcaches and Web Site Filter* link.
3. Click the *Activate Web Site Filter 30-day Trial* link.
4. Enter your details and the Webcache serial number.

The Webcache serial number is printed on the rear of the Webcache and is also displayed in the Webcache Web interface Device Summary table.

5. Click *Register.*

   After a short while, a message confirming the activation of the 30 day trial Web Site Filter will be displayed in the Web browser window. You may now download the Web Site Filter.

Downloading a New Web Site Filter

After registering a Web Site Filter license for the first time, you must download the 3Com Web Site Filter to the Webcache as described below. Until there is a Web Site Filter list available, the Web Site Filter service will apply the default rule.

You can also set up the Webcache to automatically download the latest Web Site Filter from the 3Com Web Site at a specified time. To download the Web Site Filter:

1. Log in to the Web interface.
2. Click *Content Filter* on the Toolbar.
3. Select *Webcache Filtering > 3Com Web Site Filter > Filter List Update* in the Navigation Tree.
4. Select a download time from the drop-down menu list.

5. Select the days of the week that you want the update to take place.
6. Click *OK*, to close the *Filter List Update* WIndow.

The Update Now *button on the* Filter List Update *command starts an immediate download of the filters without waiting for the next scheduled download time. You should click this when you first activate the license or you start the 30 day trial.*

Setting Up the 3Com Web Site Filter

To set up the 3Com Web Site Filter using the Web interface:

1. Log in to the Web interface.
2. Click *Content Filter* on the Toolbar.
3. Select the *Setup Filtering* wizard in the Navigation Tree.
4. *Click Next*.
5. Select the *3Com Web Site Filter* mode from the list.
6. *Click Next*.
7. Click the *View License* button to proceed.

   A window will appear requesting you to read and accept the terms of the 3Com Web Site Filter Licence. Before the 3Com Web Site Filter can be enabled, you must accept the terms of the license.
8. Click *Done*, after reading the licence to close window.
9. Select *Accept* from the *Setup Filtering* wizard if you agree to the licence terms.
10. Click *Next*.
11. Select the default rule to be applied to all web requests if the 3Com Web Site Filter service is not available or has expired.

    Choose *Deny All* to deny access to all Web sites or *Allow All* to allow access to all Web sites.
12. Select the type of blocking and logging behavior for the Filter Log. The Filter Log contains information about the clients who try to access blocked sites, and the reason why the request has been blocked. Choose from *Block Only; Log Only* or *Block and Log*.

    For more information about the Filter Log, see the "Filter Logging" section on page 159.
13. Click *Next* and then *Finish* to close the Setup Filtering Wizard.

Setting Up Filtering Policies

To set up a filtering policy you need to first specify different Category Sets that describe the type of access you want to enforce. You must then assign what Category Sets are active on which days and at which times by creating a Policy Schedule.

Setting Up a Category Set

A Category Set forms part of the filtering policy and comprises a subset of the twenty Web Site Filter categories. When you create a Category Set, you can include categories from two distinct groups: Core Categories and Productivity Categories.

- Core Categories include Sexually Explicit Material; Gambling; Violence; Drugs, Alcohol and Tobacco and Hate Speech.
- Productivity Categories include Astrology and Mysticism; Games; Hobbies; Motor Vehicles; Shopping; Chat; General News; Investments; Personals and Dating; Sports; Entertainment; Glamour and Intimate Apparel; Job Search; Real Estate and Travel.

For further information about these categories and their meaning, see Appendix J.

More than one Category Set can exist at the same time and can be enforced at different times of the day on different days of the week. Furthermore, multiple Category Sets can be active at the same time in the policy schedule.

To set up a Category Set using the Web interface:

1. Log in to the Web interface.
2. Click *Content Filter* on the Toolbar.
3. Select *Webcache Filtering > 3Com Web Site Filter > Category Sets* in the Navigation Tree.
4. To add a Category Set, enter the name in the *Category Set Name* field, then select *Add*. Repeat this for each Category Set that you want to add.

A newly added Category Set will have no categories selected. Edit the categories by clicking the Edit button.

All Category Set Names must be unique on the Webcache. If you enter a name that conflicts with an existing Category Set Name, an error message is displayed.

5. To modify the categories that will be blocked by the Category Set, click on an entry in the list and click *Edit*.

6 Check the various Web site categories that you want to block when the Category Set is active.

7 If you want to remove the Category Set from the list, click on an entry in the list and click *Remove*. To delete all entries at once, click *Remove All*.

8 Click *OK*.

Setting up the Policy Schedule

The Policy Schedule determines the time of day and days of the week when the various Category Sets should be used for content filtering by the Webcache.

You can schedule policies that overlap. When this happens a category will be filtered if either policy is set to filter that category. This can, for example, be used to set a 'baseline policy' that applies at all times adding additional categories during core work hours.

To set up the Policy Schedule using the Web interface:

1 Log in to the Web interface.

2 Click *Content Filter* on the Toolbar.

3 Select *Webcache Filtering* > *3Com Web Site Filter* > *Policy Schedule* in the Navigation Tree.

4 Click *Add*, to add a policy to the Policy Schedule.

5 Select the Category Set, that you want to assign to the policy, from the *Assign Category Set* window.

6 Click *Edit*.

7 Select the days and the times for when this Category Set should be applied. Repeat this for each Category Set that you have created and want to add to the Schedule Policy, then Click *OK*.

The Policy Schedule should now display all the defined policies.

8 Click *OK*, to close the Policy Schedule.

Editing the Policy Schedule

To edit the Policy Schedule:

1 Log in to the Web interface.

2 Click *Content Filter* on the Toolbar.

3 Select *Webcache Filtering > 3Com Web Site Filter > Policy Schedule* in the Navigation Tree.

4 To edit the schedule of an existing policy, click on the policy in the list and click *Edit;* then select the days and the time for when this Category Set should be active.

5 To remove a policy from the schedule, click on the policy in the list and click *Remove*. To delete all policies at once, click *Remove All*.

6 Click *OK*.

Testing a URL

You can test a URL against the contents in the 3Com Web Site Filtering service by using the *Test a URL* command. This command displays a list of categories that the URL is rated as being a member of.

To test a URL:

1 Log in to the Web interface.

2 Click *Content Filter* on the Toolbar.

3 Select *Webcache Filtering > 3Com Web Site Filter > Test a URL* in the Navigation Tree.

4 Enter the URL that you want to test.

5 Click *Test*.

If the URL is not categorised by the 3Com Web Site Filtering service or you believe that it has been wrongly categorised, you can submit the URL for review by clicking the *Submit for Review* button. When you submit a URL for review, a new browser window will open that will allow you to specify the change that you are proposing.

The following sections apply to the 3Com Web Site Filter:

- "Default Rule" on page 159
- "Filter Logging" on page 159
- "Web Client Blocking" on page 161
- "Filter Exclusions" on page 166
- "Setting Up Allow Lists and Deny Lists" on page 169
- "Keyword Blocking" on page 174
- "Customizing the Content Filter Response Screen" on page 176

Websense Enterprise Filtering

Websense Enterprise filtering is a third party software package that allows you to apply content filtering through the Webcache. An external Websense Enterprise Server is queried for every Web request the Webcache receives. Websense Enterprise then decides whether to allow or deny the request. When you configure your Webcache to use Websense Enterprise filtering, the Manual Filtering and the 3Com Web Site Filtering commands on the Webcache will be disabled.

When a client computer attempts to access a Web site, the Webcache applies the following rules in the order listed:

1. Web Client Blocking — If Web Client Blocking has been activated the Webcache checks to see if the client is on the Web Client Blocking List. Unauthorized clients will be blocked. See "Web Client Blocking"on page 161 for more information.
2. Websense Enterprise Server Status — If the Websense Enterprise Server does not respond then the Webcache will filter according to the Default Rule (*Allow All* or *Deny All*) otherwise it will continue with the next rule. See "Default Rule" on page 159 for more information about the Default Rule.
3. Websense Enterprise Server — The Webcache asks the Websense Enterprise Server if the Web site should be filtered. See below for a summary of the installation of Websense Enterprise filtering software and follow the instructions in "Setting Up Websense Enterprise Filtering on your Webcache" on page 156 to set up your Webcache to use Websense Enterprise filtering. Refer to the documentation provided by Websense for more information about the Websense Enterprise filtering software.

The Filter Exclusion, Allow, Deny, *and* Keyword Blocking *lists are ignored when using a Websense Enterprise filtering Server.*

Acquiring the Websense Enterprise Filtering Software

You can acquire the Websense Enterprise filtering software from Websense Enterprise resellers around the world. For more information about obtaining the software and finding a reseller, go to the Websense Web site:

`http://www.websense.com`

Installing the Websense Enterprise Filtering Software

When you install the software, you must install and configure Websense Enterprise on a server of your choice. When you are offered a choice of the integration mode in the Websense Enterprise installer, you must select the *Universal* option. For further information, see the instructions that accompany the Websense Enterprise software.

Setting Up Websense Enterprise Filtering on your Webcache

Having acquired and installed the Websense Enterprise filtering software on your server, you can now set up your Webcache for Websense filtering.

To set up Websense Enterprise filtering using the Web interface:

1. Log in to the Web interface.
2. Click *Content Filter* on the Toolbar.
3. Select the *Setup Filtering* wizard in the Navigation Tree.
4. *Click Next*.
5. Select the *Websense Enterprise Filtering* mode from the list.
6. *Click Next*.
7. Enter the IP address and the TCP port number in use by the Websense Enterprise Server.
8. Select the default rule to be applied to all web requests if the Websense Enterprise Server is unavailable. Choose *Deny All* to deny access to all Web sites or *Allow All* to allow access to all Web sites.
9. Click *Next* and then *Finish* to close the Setup Filtering Wizard.

Editing the Websense Enterprise Filtering Settings

To edit the Websense Enterprise filtering settings:

1. Log in to the Web interface.
2. Click *Content Filter* on the Toolbar.
3. Select *Websense Filtering* > *Setup Websense* in the Navigation Tree.
4. Enter the IP address and the TCP port number in use by the Websense Enterprise Server.
5. Select the default rule to be applied to all web requests if the Websense Enterprise Server is unavailable. Choose *Deny All* to deny access to all Web sites or *Allow All* to allow access to all Web sites.
6. Click *OK* to close the Setup Websense window.

The following sections apply to Websense Enterprise filtering:

- "Default Rule" on page 159

- "Web Client Blocking" on page 161
- "Customizing the Content Filter Response Screen" on page 176

Manual Content Filtering

Manual Content Filtering allows you to control which Web sites can be accessed through the Webcache. If you enable Manual Content Filtering, you must manually create a list of the domain names, IP addresses or IP address ranges of Web sites to which you want to either allow or deny access.

When you configure your Webcache to use Manual Filtering or the 3Com Web Site Filtering service, the Websense Enterprise filtering commands on the Webcache are disabled.

When a client computer attempts to access a Web site, the Webcache applies the following rules in the order listed:

1. Web Client Blocking — If Web Client Blocking has been activated the Webcache checks to see if the client is on the Web Client Blocking List. Unauthorized clients will be blocked. See "Web Client Blocking"on page 161 for more information.
2. Filter Exclusion — The Webcache checks to see if the client is on the Filter Exclusion list. For authorized clients, further rules will be bypassed and the clients granted access to the Website. See "Filter Exclusions" on page 166 for more information.
3. Allow and Deny Lists — The Webcache checks to see if the Web site being accessed has been expressly allowed or blocked (denied) by an administrator. If the Web site is on the Allow List, the user is granted access. If it is on the Deny List the access is blocked. If the site is not listed then the Webcache looks at the next rule. See "Setting Up Allow Lists and Deny Lists" on page 169 for more information.

If a domain name appears in both the Allow *and* Deny Lists *then it will be filtered. To stop the site from being filtered, remove it from the* Deny List.

4. Keyword Blocking — The Webcache checks all the entries in the Keyword Blocking list against the domain name of the Web site for a partial match. If a partial or complete match is found then the site is filtered, otherwise the Webcache continues with the next rule. See "Keyword Blocking" on page 174 for more information.

It is important to use caution when adding keywords to the list as you may filter sites other than you intend. For example, blocking the word breast may filter sites on breast cancer as well as objectionable or pornographic sites.

5 Default Rule — The Webcache will filter according to the Default Rule (*Allow All* or *Deny All*). See "Default Rule" on page 159 for more information.

Setting Up Manual Content Filtering

To set up Manual Content Filtering using the Web interface:

1 Log in to the Web interface.

2 Click *Content Filter* on the Toolbar.

3 Select the *Setup Filtering* wizard in the Navigation Tree.

4 *Click Next*.

5 Select the *Manual Filtering* mode from the list.

6 *Click Next*.

7 Select the default rule to be applied to all web requests that are not covered by the Allow and Deny Lists (see "Setting Up Allow Lists and Deny Lists" on page 169) or Keyword Blocking (see "Setting Up Keyword Blocking Lists" on page 174).

Choose *Deny All* to deny access to all Web sites except the ones that you enter in the list, or *Allow All* to allow access to all Web sites except those listed.

8 Select the type of blocking and logging behavior for the Filter Log. The Filter Log contains information about the clients who try to access blocked sites. Choose from *Block Only; Log Only* or *Block and Log*.

For more information about the Filter Log, see the Filter Logging section on page 159.

9 Click *Next* and then *Finish* to close the Setup Filtering Wizard.

The following sections apply to Manual Content Filtering:

- "Default Rule" on page 159
- "Filter Logging" on page 159
- "Web Client Blocking" on page 161
- "Filter Exclusions" on page 166

- "Setting Up Allow Lists and Deny Lists" on page 169
- "Keyword Blocking" on page 174
- "Customizing the Content Filter Response Screen" on page 176

Default Rule

The Default Rule is the last filter used if Manual Filtering has been selected and the rule that is applied if the 3Com Web Site Filter has expired or if the Websense Enterprise server fails to respond.

The Default Rule can take one of two values:

- Allow All — All Web sites that have not already been filtered will be allowed. This will allow your users access to a wider range of Web sites but will lead to a higher chance of finding questionable material. This will allow your users unrestricted access to all Web sites should the content filter service fails.
- Deny All — All Web sites that have not already been filtered will be filtered (denied). This will stop users accessing questionable material as all sites that have not been specifically allowed will be filtered. This will prevent your users from accessing any Web sites at all if the content filter service fails.

Setting the Default Rule

The Default Rule is set using the same Setup Filtering Wizard that is used to set the filtering mode. You can set the Default Rule when you choose the filtering mode.

Follow the steps below to change the Default Rule:

1. Log in to the Web interface.
2. Click *Content Filter* on the Toolbar.
3. Select the *Setup Filtering* wizard in the Navigation Tree.
4. *Click Next*.
5. The filtering mode will show the current option selected.
6. Select the Default Rule for the Webcache. Click *Next* and then *Finish* to close the Setup Filtering Wizard.

Filter Logging

When you set up the Webcache for Manual Content Filtering or 3Com Web Site Filtering, you will have been prompted to enable the Filter Log.

The Filter Log stores information about the clients who try to access blocked sites, and the reason why the request has been blocked. This section explains the filter logging options.

Blocking and Logging Behavior

When the Webcache filters a Web site it can perform one of three actions:

- Block Only — Access to the Web site is blocked. The Custom Response screen will be shown to the user. No record is made of the Web site that the user attempted to visit.
- Log Only — Access to the Web site is allowed. No indication that the Web site is filtered is given to the user. The Web site that the user visited and the user's IP address are logged in the Filter Log.
- Block and Log — Access to the Web site is blocked. The Custom Response screen will be shown to the user. The Web site that the user attempted to visit and the user's IP address are logged in the Filter Log.

Setting Blocking and Logging Behavior

You can set up the blocking and logging behavior of the Webcache using the same Setup Filtering Wizard that is used to set the filtering mode. You can set the blocking and logging behavior when you choose the filtering mode.

The Webcache will only log and block in the 3Com Web Filter and Manual modes. If you are using Websense Enterprise filtering refer to the documentation supplied with Websense Enterprise for an equivalent function.

Follow the steps below to set up or change the blocking and logging behavior:

1. Log in to the Web interface.
2. Click *Content Filter* on the Toolbar.
3. Select the *Setup Filtering* wizard in the Navigation Tree.
4. *Click Next*.
5. The filtering mode will show the current option selected.
6. Select the type of blocking and logging behavior for the Filter Log. The Filter Log contains information about the clients who try to access sites blocked by the Deny List. Choose from *Block Only; Log Only* or *Block and Log*.

7 Click *Next* and then *Finish* to close the Setup Filtering Wizard.

Storing the Filter Log

You can specify an FTP server to which you want to periodically save the log files. If this option is enabled, the logs are offloaded to the FTP server whenever any log reaches 250 MB in size, or every 24 hours, whichever comes first. See "Storing the Log Files" on page 140.

Viewing the Filter Log

The *View Filter Log* command displays the last 256 entries registered by the Filter Log.

To view the Filter Log:

1 Log in to the Web interface.

2 Click *Content Filter* on the Toolbar.

3 Select *Webcache Filtering* > *View Filter Log* in the Navigation Tree.

Click on *Refresh* to clear the Filter Log, or *Finish* to close the Filter Log.

Web Client Blocking

Web Client Blocking allows you to control which client machines in your network can access the Web through the Webcache. If you enable Web Client Blocking, you can create a list of the static IP addresses or IP address ranges of client machines that you are allowing or denying access to the Web through the Webcache. If the client machine is blocked by Web Client Blocking, the Customize Response screen will not appear.

The Webcache is capable of blocking Web Clients in two different ways:

- *Deny all except* — to stop all clients accessing the Web except for those you specifically allow.
- *Allow all except* — to allow all clients to access the Web except for those you specifically block.

CAUTION: *If the browser on the client machine that you are using to configure the Webcache is also using the Webcache as a proxy, and you enable Web Client Blocking, ensure that your client is allowed Web access. If you do not do this, access from the client machine to the Webcache will be blocked, preventing you from using the Web interface. You can regain access by either:*

- *Changing the client machine's browser settings to remove the use of the Webcache as a proxy or*

- *Using a browser on a client machine whose IP address is not blocked by Web Client Blocking to access the Web Interface.*

All client machines that you specify in the Cache Bypass screen will not be prevented by the Webcache from accessing the Web. Cache Bypass takes precedence over Web Client Blocking when the Webcache receives a client machine request. For further information, see "Cache Bypass" *on* page 186.

Using Web Client Blocking with DHCP Servers

Dynamic Host Configuration Protocol (DHCP) servers can be used with Web Client Blocking in two ways:

- You can configure your network into subnets and assign specific client machines IP addresses within these subnets. You can then allow or deny specific subnet IP address ranges access to the Web through the Webcache using Web Client Blocking.

  Example

  You configure your user group A to use a subnet defined as 10.1.2.0-255, and user group B to use another subnet defined as 10.1.3.0-255. If you want to prevent everyone except group B from accessing the Web, you would set the Web Client Blocking to *Deny all except* and add the subnet 10.1.3.0-255 to the Web Client Blocking list. Group B would then be able to access the Web, while everyone else, including group A, would have no access to the Web.

- You can configure your DHCP server to return specific IP addresses based on the requesting client machine's MAC address. You can configure Web Client Blocking to block or allow specific client machine IP addresses, or ranges of IP addresses, as appropriate.

Setting Up Web Client Blocking

To set up Web Client Blocking using the Web interface:

1. Log in to the Web interface.
2. Click *Content Filter* on the Toolbar.
3. Select *Webcache Filtering > Web Client Blocking > Setup Client Blocking* in the Navigation Tree.
4. Check *Enable Web Client Blocking*.
5. Select either:
   - *Deny all except* — to stop all clients accessing the Web except for those you specifically allow.

- *Allow all except* — to allow all clients to access the Web except for those you specifically block.

6 Click *OK*.

Creating a Web Client Blocking List

You can create a list of the IP addresses or IP address ranges of the client machines for which you want to change the default Web Client Blocking behavior:

- If you selected *Deny all except* when setting up Web Client Blocking then the addresses on the Web Client Blocking List will be allowed access to the Web.
- If you selected *Allow all except* when setting up Web Client Blocking then the addresses on the Web Client Blocking List will be blocked from accessing the Web.

The Web Client Blocking List can be created in one of the following ways:

- Manually entering each IP address or IP address range in the Edit List screen.
- Loading an existing list of IP addresses or IP address ranges from an external text file in the Load List From File screen.
- A combination of the above methods.

Manually Entering an IP Address into the Web Client Blocking List

To manually enter an IP address or IP address range in the Web Client Blocking List:

1 Log in to the Web interface.

2 Click *Content Filter* on the Toolbar.

3 Select *Webcache Filtering* > *Web Client Blocking* > *Edit List* in the Navigation Tree.

4 Enter the IP address or IP address range of the client machine(s) that you want to add to the list in the *Enter the IP Address or Address Range to add to the Web Client Blocking List* field, and click *Add*. Repeat this for each IP address for which you want to change the default Web Client Blocking behavior.

You must follow all of the rules listed in "IP Address Rules" on page 27 when adding an entry in the Web Client Blocking List.

5 If you want to remove an entry from the list, click on an entry in the list and click *Remove*. To delete all entries at once, click *Remove All*.

Example

If you select *Deny all except* when you set up Web Client Blocking (see "Setting Up Web Client Blocking" on page 162), you can enter `216.115.0.0-216.115.255.255` to allow access for that IP address range, or enter `216.115.105.2` to allow access for that specific IP address.

Example

If you select *Allow all except* when you set up Web Client Blocking (see "Setting Up Web Client Blocking" on page 162), you can block individual client machines, instantaneously disconnecting them from the Internet, and preventing them from breaking your Internet access policy. Such actions may be necessary even with Content Filtering active, as there may still be Web users who deliberately try to find newly created sites not yet added to the filters. You can identify these users by examining the Access Log (see "Monitoring Web Access" on page 139).

Loading Entries From a File Into the Web Client Blocking List

To load a list of Web clients into the Web Client Blocking List:

1 Log in to the Web interface.

2 Click *Content Filter* on the Toolbar.

3 Select *Webcache Filtering > Web Client Blocking > Load List From File* in the Navigation Tree.

4 Enter the full pathname of the file that you want to load in the *Name of File To Load* field.

You can also click *Browse* to search for the location of a file.

5 Select *Replace the Current Web Client Blocking List* to replace the current Web Client Blocking List with the list of Web clients in the file that you are loading, or select *Merge with the Current Web Client Blocking List* to merge the two lists together.

You should choose to replace the current list if you have a complete list of entries in an external file that you want to use to overwrite the list on the Webcache.

You should choose to merge with the current list if you have a list of entries in an external file that you want to add to the list on the Webcache.

6 Select *Load* to load the new list.

Loading a list may take a few seconds to complete, depending on the number of entries being loaded.

List Rules

There are certain rules that you must follow when loading a list of Web clients into the Web Client Blocking List. When loading a file into the Web Client Blocking List, the file must be a plain text file with the following restrictions:

- Each entry must be on a separate line.
- Each line must not exceed 32 characters in length.
- Blank lines are ignored.
- There must be no spaces at the beginning of a line.
- The Web Client Blocking List can contain a maximum of 900 entries. If loading the file results in more than 900 entries in the Web Client Blocking List, all subsequent entries after the limit has been reached will not be loaded into the List.

You must also follow all of the rules listed in "IP Address Rules" on page 27.

Saving the Web Client Blocking List

You can save the current Web Client Blocking List to an external text file. This allows you to modify and then load the file back onto the Webcache using the *Load List From File* command, or to load and re-use the list on another Webcache.

To save the Web Client Blocking List:

1 Log in to the Web interface.

2 Click *Content Filter* on the Toolbar.

3 Select *Webcache Filtering* > *Web Client Blocking* > *Save List To File* in the Navigation Tree.

4 Click *Save*.

5 The File Download screen is displayed. Select *Save this file to disk* and enter a filename and location to store the saved list.

Saving a list may take a few seconds to complete, depending on the number of entries being saved.

Clearing the Web Client Blocking List

You can use the Clear List screen to delete all the current entries in the Web Client Blocking List.

To clear the Web Client Blocking List:

1. Log in to the Web interface.
2. Click *Content Filter* on the Toolbar.
3. Select *Webcache Filtering* > *Web Client Blocking* > *Clear List* in the Navigation Tree.
4. Click *OK* to clear the Web Client Blocking list.

Filter Exclusions

Filter Exclusions allow you to specify and exclude particular client machines from any content filtering. The Exclusion List can be enabled when you set up the Webcache for Manual Content Filtering or 3Com Web Site Filtering. One use of the Filter Exclusion List is to exclude machines used by network administrators who must be exempt from content filtering.

If you configure the Webcache to use a Websense Enterprise server for content filtering then the Filter Exclusion List will be disabled.

Setting Up Filter Exclusion Lists

To set up Exclusion lists using the Web interface:

1. Log in to the Web interface.
2. Click *Content Filter* on the Toolbar.
3. Select *Webcache Filtering* > *Filter Exclusion* > *Setup Filter Exclusion* in the Navigation Tree.
4. Select *Enable Filter Exclusion* to allow entries to be entered into the Filter Exclusion List.

Editing the Filter Exclusion List

You can create a list of the IP addresses or IP address ranges of clients that you want to exclude from being filtered in the following ways:

- Manually entering each IP address in the Filter Exclusion List.
- Loading an existing list of IP addresses from an external text file in the Load List From File screen.
- A combination of the above methods.

To add a client to the Filter Exclusion List:

1. Log in to the Web interface.
2. Click *Content Filter* on the Toolbar.
3. Select *Webcache Filtering* > *Filter Exclusion* > *Edit List* in the Navigation Tree.
4. Enter the IP address or IP address range of the clients who you want to add to the Filter Exclusion List and click *Add*. Repeat this for each Client who you want to exclude.

   Example

   You can enter **`216.115.0.0-216.115.255.255`** to exclude from filtering that IP address range, or enter **`216.115.105.2`** to exclude that specific IP address.

   You must follow all of the rules listed in the "IP Address Rules" section on page 27 when adding an entry in the Filter Exclusion List.

   You can enter a maximum of 900 entries into the Filter Exclusion List *on the Webcache. If you enter more that 500 entries, you will be presented with an error message. If you want to enter more than 500 entries you must use the* Load List From File *feature that allows you to load and manage 900 entries. If you load more that 900 entries, all entries after the 900th will be discarded.*

5. If you want to remove an entry from the list, click on an entry and click *Remove*. To delete all entries at once, click *Remove All*.

Loading Entries From a File into the Filter Exclusion List

A text file containing a list of excluded clients can be loaded into the Filter Exclusion List. To do this:

1. Log in to the Web interface.
2. Click *Content Filter* on the Toolbar.
3. Select *Webcache Filtering* > *Filter Exclusion* > *Load List From File* in the Navigation Tree.
4. Enter the full pathname of the file that you want to load in the *Name of File To Load* field.

   You can also click *Browse* to search for the location of the file.

5. Select *Replace the Current Filter Exclusion List* to replace the current list settings with the contents of the file that you are loading, or select *Merge with Current Filter Exclusion List* to merge the two lists together.

You should choose to replace the current list if you have a complete list of entries in an external file that you want to use to overwrite the list on the Webcache.

You should choose to merge with the current list if you have a partial list of entries in an external file that you want to add to the list on the Webcache.

6 Select *Load* to load the new file.

Loading a list may take a few seconds to complete, depending on the number of entries being loaded.

List Rules

There are certain rules that you must follow when loading a list of IP addresses or IP address ranges into the Filter Exclusion List. When loading a file into the Filter Exclusion List, the file must be a plain text file with the following restrictions:

- Each entry must be on a separate line.
- Each line in the file must not exceed 75 characters in length.
- Blank lines are ignored.
- There must be no spaces at the beginning of a line.
- The list can contain a maximum of 900 entries. If loading the file results in more than 900 entries, all subsequent entries after the limit has been reached will not be loaded into the List.

Saving the New Filter Exclusion List

You can save the current list to an external text file. This allows you to modify and then load the file back onto the Webcache using the *Load List From File* command, or to load and re-use the list on another Webcache.

To save the list:

1 Log in to the Web interface.

2 Click *Content Filtering* on the Toolbar.

3 Select *Webcache Filtering* > *Filter Exclusion* > *Save List To File* in the Navigation Tree.

4 Click *Save*.

5 The File Download screen is displayed. Select *Save this file to disk* and enter a filename and location to store the saved list.

Saving a list may take a few seconds to complete, depending on the number of entries being saved.

Clearing the Filter Exclusion List

You can use the Clear List screen to delete all the current entries in the Filter Exclusion List.

To do this:

1. Log in to the Web interface.
2. Click *Content Filter* on the Toolbar.
3. Select *Webcache Filtering* > *Filter Exclusion* > *Clear List* in the Navigation Tree.
4. Click *OK* to clear the Filter Exclusion List.

Setting Up Allow Lists and Deny Lists

You can create a list of the domain names, IP addresses or IP address ranges of Web sites that you want to either allow or deny access to when you select the Manual Content Filtering or 3Com Web Site Filtering modes.

To set up Allow/Deny lists using the Web interface:

1. Log in to the Web interface.
2. Click *Content Filter* on the Toolbar.
3. Select *Webcache Filtering* > *Allow/Deny Lists* > *Setup Allow/Deny* in the Navigation Tree.
4. Select *Enable Allow List* to allow access to Web sites that might otherwise be blocked, or *Enable Deny List* to deny access to Web sites that might otherwise be allowed. You can select either or both features.

If a domain name appears in both the Allow *and* Deny *Lists then it will be filtered. To stop the site from being filtered, remove it from the* Deny List.

Editing the Allow and Deny Lists

You can edit the Allow and Deny Lists in the following ways:

- Manually entering each Web site in the Allow and Deny Lists.
- Loading an existing list of Web sites from an external text file in the Load List From File screen.
- A combination of the above methods.

Manually Entering a Web Site into the Allow List

To manually enter a Web site into the Allow List:

1. Log in to the Web interface.
2. Click *Content Filter* on the Toolbar.
3. Select *Webcache Filtering* > *Allow/Deny Lists* > *Edit Allow List* in the Navigation Tree.
4. Enter the domain name, IP address or IP address range of the Web site you want to add to the list and click *Add*. Repeat this for each Web site that you want to allow.

   Example

   You can enter **`yahoo.com`** to allow that entire domain, or enter **`auctions.yahoo.com`** to allow that subdomain.

   You can enter **`216.115.0.0-216.115.255.255`** to allow that IP address range, or enter **`216.115.105.2`** to allow that specific IP address.

   You must follow all of the rules listed in the "Domain Name System Syntax"on page 28 and "IP Address Rules" starting on page 27 when adding an entry in the Allow List.

You cannot enter a URL into an Allow or Deny list; you must enter a domain or IP address. For example, **`http://mysite.com/goodurl.html`** *is incorrect. The site should be entered as* **`mysite.com`**.

You can enter a maximum of 900 entries into the Edit Allow List on the Webcache. If you enter more that 500 entries, you will be presented with an error message. If you want to enter more than 500 entries you must use the Load List From File command that allows you to load and manage 900 entries. If you load more that 900 entries, all entries after the 900th will be discarded.

The Webcache may take some time to process long lists or lists containing large IP address ranges. While the Webcache is processing the lists the allow or deny lists will not be used the filter Web traffic. During this time the Web interface will show the Current Status *of the Webcache as* Updating.

5. If you want to remove an entry from the list, click on an entry in the list and click *Remove*. To delete all entries at once, click *Remove All*.

Manually Entering a Web Site into the Deny List

To manually enter a Web site in the Deny List:

1 Log in to the Web interface.

2 Click *Content Filter* on the Toolbar.

3 Select *Webcache Filtering* > *Allow/Deny Lists* > *Edit Deny List* in the Navigation Tree.

4 Enter the domain name, IP address or IP address range of the Web site you want to add to the list and click *Add*. Repeat this for each Web site that you want to deny.

Example

You can enter **`yahoo.com`** to deny that entire domain, or enter **`auctions.yahoo.com`** to deny that subdomain.

You can enter **`216.115.0.0-216.115.255.255`** to deny that IP address range, or enter **`216.115.105.2`** to deny that specific IP address.

You must follow all of the rules listed in the "Domain Name System Syntax"on page 28 and "IP Address Rules" starting on page 27 when adding an entry in the Deny List.

You cannot enter a URL into an Allow or Deny list; you must enter a domain or IP address. For example, **`http://mysite.com/badurl.html`** *is incorrect. The site should be entered as* **`mysite.com`**.

You can enter a maximum of 900 entries into the Edit Deny List *on the Webcache. If you enter more that 500 entries, you will be presented with an error message. If you want to enter more than 500 entries you must use the* Load List From File *feature that allows you to load and manage 900 entries. If you load more that 900 entries, all entries after the 900th will be discarded.*

The Webcache may take some time to process long lists or lists containing large IP address ranges. While the Webcache is processing the lists, the changes to the Allow and Deny lists will not be used to filter Web traffic. During this time the Web interface will show the Current Status *of the Webcache as* Updating.

5 If you want to remove an entry from the list, click on an entry in the list and click *Remove*. To delete all entries at once, click *Remove All*.

Loading Entries From a File into the Allow List or Deny List

A text file containing a list of domain names, IP addresses or IP address ranges, can be loaded into the Allow List or Deny List. To do this:

1. Log in to the Web interface.
2. Click *Content Filtering* on the Toolbar.
3. Select *Webcache Filtering* > *Allow/Deny Lists* > *Load List From File* in the Navigation Tree.
4. Select which list you want to load the file into. Choose either *Load into Allow List* or *Load into Deny List.*
5. Enter the full pathname of the file that you want to load in the *Name of File To Load* field.

   You can also click *Browse* to search for the location of the file.
6. Select *Replace the Current List* to replace the current list settings with the contents of the file that you are loading, or select *Merge with the Current List* to merge the two lists together.

   You should choose to replace the current list if you have a complete list of entries in an external file that you want to use to overwrite the list on the Webcache.

   You should choose to merge with the current list if you have a list of entries in an external file that you want to add to the list on the Webcache. If duplicate entries exist in both lists, they will be ignored.
7. Select *Load* to load the new file.

Loading a list may take a few seconds to complete, depending on the number of entries being loaded.

The Webcache may take some time to process long lists or lists containing large IP address ranges. While the Webcache is processing the lists the allow or deny lists will not be used the filter Web traffic. During this time the Web interface will show the Current Status *of the Webcache as* Updating*.*

List Rules

There are certain rules that you must follow when loading a list of domain names, IP addresses or IP address ranges into the Allow or Deny List. When loading a file into the Allow or Deny List, the file must be a plain text file with the following restrictions:

- Each entry must be on a separate line.

- Each line in the file must not exceed 75 characters in length.
- Blank lines are ignored.
- There must be no spaces at the beginning of a line.
- The list can contain a maximum of 900 entries. If loading the file results in more than 900 entries, all subsequent entries after the limit has been reached will not be loaded into the list.

You must follow all of the rules listed in "Domain Name System Syntax" and "IP Address Rules" in Chapter 1.

Saving the New Allow List or Deny List

You can save the current list to an external text file. This allows you to modify and then load the file back onto the Webcache using the *Load List From File* command, or to load and re-use the list on another Webcache.

To save the list:

1. Log in to the Web interface.
2. Click *Content Filter* on the Toolbar.
3. Select *Webcache Filtering* > *Allow/Deny Lists* > *Save List To File* in the Navigation Tree.
4. Select the list that you want to save. Choose *Save Allow List* or *Save Deny List.*
5. Click *Save*. The File Download screen is displayed. Select *Save this file to disk* and enter a filename and location to store the saved list.

Saving the list may take a few seconds to complete, depending on the number of entries being saved.

Clearing the Allow List or Deny List

You can use the *Clear List* command to delete all the current entries in the Allow List or Deny List.

To do this:

1. Log in to the Web interface.
2. Click *Content Filter* on the Toolbar.
3. Select *Webcache Filtering* > *Allow/Deny Lists* > *Clear List* in the Navigation Tree.
4. Select which list you wish to clear. Choose *Clear Allow List* or *Clear Deny List*.
5. Click *OK* to clear the Allow or Deny List.

Keyword Blocking

Keyword blocking allows the Webcache to prevent access to URLs containing particular words. Keyword Blocking can be enabled when you set up the Webcache for Manual Content Filtering or 3Com Web Site Filtering. You may specify a list of up to 900 URL keywords to the Webcache. Any request containing these keywords in the URL will trigger content filtering. Keyword Blocking is applied as a system wide policy regardless of individual category sets in the Filter Policy.

Keyword blocking searches for keywords in the URL and not the Web site itself. Blocking the keyword gun *will block* http://www.gun.com/ *as well as* http://www.guncontrol.com/ *but not* http://www.weapons.com/ *even if it mentions guns in the text.*

Setting Up Keyword Blocking Lists

To set up Keyword Blocking lists using the Web interface:

1. Log in to the Web interface.
2. Click *Content Filter* on the Toolbar.
3. Select *Webcache Filtering* > *Keyword Blocking* > *Setup Keywords* in the Navigation Tree.
4. Select *Enable Keyword Blocking* to deny access to URLs that contain the specific keyword.

Editing the Keyword Blocking List

To add a keyword to the Keyword Blocking List:

1. Log in to the Web interface.
2. Click *Content Filter* on the Toolbar.
3. Select *Webcache Filtering* > *Keyword Blocking* > *Edit List* in the Navigation Tree.
4. Enter the keyword that you want to add to the Keyword Blocking List and click *Add*. Repeat this for each keyword that you want to add.

You can enter a maximum of 900 entries into the Keyword Blocking List *on the Webcache. If you enter more that 500 entries, you will be presented with an error message. If you want to enter more than 500 entries you must use the* Load List From File *command that allows you to load and manage 900 entries. If you load more that 900 entries, all entries after the 900th will be discarded.*

5 If you want to remove an entry from the list, click on an entry and click *Remove*. To delete all entries at once, click *Remove All*.

Loading Entries From a File into the Keyword Blocking List

A text file containing a list of keywords can be loaded into the Keyword Blocking List. To do this:

1 Log in to the Web interface.

2 Click *Content Filter* on the Toolbar.

3 Select *Webcache Filtering* > *Keyword Blocking* > *Load List From File* in the Navigation Tree.

4 Enter the full pathname of the file that you want to load in the *Name of File To Load* field.

You can also click *Browse* to search for the location of the file.

5 Select *Replace the Current Keyword Blocking List* to replace the current list settings with the list of keywords in the file that you are loading, or select *Merge with Current Keyword Blocking List* to merge the two lists together.

You should choose to replace the current list if you have a complete list of entries in an external file that you want to use to overwrite the list on the Webcache.

You should choose to merge with the current list if you have a list of entries in an external file that you want to add to the list on the Webcache.

6 Select *Load* to load the new file.

Loading a list may take a few seconds to complete, depending on the number of entries being loaded.

List Rules

There are certain rules that you must follow when loading a list of keywords into the Keyword Blocking List. When loading a file into the Keyword Blocking List, the file must be a plain text file with the following restrictions:

- Each entry must be on a separate line.
- Each line in the file must not exceed 75 characters in length.
- Blank lines are ignored.

- There must be no spaces at the beginning of a line.
- The List can contain a maximum of 900 entries. If loading the file results in more than 900 entries, all subsequent entries after the limit has been reached will not be loaded.

Saving the New Keyword Blocking List

You can save the current list to an external text file. This allows you to modify and then load the file back onto the Webcache using the *Load List From File* command, or to load and re-use the list on another Webcache.

To save the List:

1. Log in to the Web interface.
2. Click *Content Filtering* on the Toolbar.
3. Select *Webcache Filtering* > *Keyword Blocking* > *Save List To File* in the Navigation Tree.
4. Click *Save*.
5. The File Download screen is displayed. Select *Save this file to disk* and enter a filename and location to store the saved list.

Saving a list may take a few seconds to complete, depending on the number of entries being saved.

Clearing the Keyword Blocking List

You can use the Clear List screen to delete all the current entries in the Keyword Blocking List.

To do this:

1. Log in to the Web interface.
2. Click *Content Filter* on the Toolbar.
3. Select *Webcache Filtering* > *Keyword Blocking* > *Clear List* in the Navigation Tree.
4. Click *OK* to clear the Keyword Blocking List.

Customizing the Content Filter Response Screen

You can modify the response screen that is automatically generated by the Webcache when a client machine tries to access a Web site that is blocked. This allows you to enter additional information to customize the response screen for your organization. For example, you could add “Access to this website has been denied. If you do not agree with this site being blocked, please contact your IT department”.

If the client machine is blocked by Web Client Blocking, the Customize Response screen will not appear.

To customize the response using the Web interface:

1 Click *Content Filter* on the Toolbar.

2 Select *Webcache Filtering* > *Custom Response* in the Navigation Tree.

3 Enter up to 512 characters of text or HTML code in the *Add This Text* field that you want to add to the response screen that informs the end user that access has been denied. The text or HTML that you enter will be appended to the standard text that appears, which is "You are not authorized to view this page". You cannot change or delete this standard text.

You cannot add images to the Customize Response screen e.g. gif or jpg files.

4 If you want to view your changes before saving them to check that your text or HTML is correct, click *Preview*.

5 Click *OK* to save the text or HTML code that you have entered.

There is a default option in Microsoft Internet Explorer 4 and later versions that will cause a "friendly HTTP error message" to be displayed when a Web site is blocked, rather than the response page generated by the Webcache. You can turn this setting off from Internet Explorer by selecting Tools > Internet Options > Advanced *and unchecking* Show friendly HTTP error messages*. The response page generated by the Webcache will never be displayed by Internet Explorer if you do not change this setting.*

For a description of the use of friendly HTTP-status error messages, view the Microsoft Knowledge Base at:

`http://support.microsoft.com/`
(correct at time of publishing)

and search for the article ID number **`Q218155`**.

V CONTROLLING CACHING

11 CONTROLLING HOW WEB SITES ARE CACHED

This chapter contains information about

- Cache Control
- Clearing the Cache
- Cache Bypass

Cache Control

Cache Control allows you to control the caching behavior of the Webcache for specific Web sites. Cache control works in any deployment mode and has two functions:

- Cache Control can be used to reduce traffic across your WAN network and improve response time to your clients by pinning content for a period of time between an hour and a week. The Web sites that are pinned when requested by a client will be served from the Webcache without checking if the content has changed.
- Cache Control can also be used to prevent the caching of Web sites that do not work correctly if cached. For example, if you believe a Web site is returning expired content, you may wish to ensure it is not cached by including it in the Cache Control list.

Unlike Cache Bypass, requests made to Web sites marked *Never Cache* are still subject to Content Filtering, as described in Chapter 10, and are also recorded in the Access Log.

Setting Up Cache Control

To set up Cache Control using the Web interface:

1. Log in to the Web interface.
2. Click *Caching* on the Toolbar.
3. Select *Cache Control* > *Setup Cache Control* in the Navigation Tree.
4. Check *Enable Cache Control*.

   You will be warned that entries in the Cache Control list will not take effect until cached objects are cleared with the Clear Cache command.
5. Click *OK* to save your changes.

You must clear cached objects before the current Cache Control list can take effect. If you are going to further configure Cache Control, for example by adding or removing domains from the list, you may want to wait until you have completed those tasks before clearing the cache.

To clear the cache see "Clearing the Cache" on page 186.

Creating a Cache Control List

You can create a list of the domain names, IP addresses or IP address ranges of Web sites that you want to prevent from being cached or have pinned in the following ways:

- Manually entering each Web site in the Edit List screen.
- Loading an existing list of Web sites from an external text file in the Load List From File screen.
- A combination of the above methods.

Manually Entering a Web Site Into the Cache Control List

To manually enter a Web site in the Cache Control List:

1. Log in to the Web interface.
2. Click *Caching* on the Toolbar.
3. Select *Cache Control* > *Edit List* in the Navigation Tree.
4. In the *Enter the domain to add to the Cache Control List* field, enter the domain name, IP address or IP address range of the Web site you want to add to the list.
5. In the Caching Behavior field select either:
   - the length of time you want the content to be pinned or
   - *Never Cache* if you want the Webcache never to cache the content.
6. Click *Add* to add the domain name, IP address or IP address range to the list.
7. Repeat step 4 to step 6 for each Web site that you want to prevent from being cached or pin in the cache.

   If you want to remove an entry from the list, click on an entry in the list and click *Remove*. To delete all entries at once, click *Remove All*.
8. Click *OK* to save your changes.

You must clear cached objects before the current Cache Control list can take effect. If you are going to further configure Cache Control, for example by adding or removing domains from the list, you may want to wait until you have completed those tasks before clearing the cache.

For example, if you want to prevent the all the subdomains of the another.com Web site from being cached, enter **`another.com`**, select *Never Cache* from the Caching Behavior drop-down box and click *OK*. This will prevent `www.another.com`, `sales.another.com` and `yet.another.com` from being cached. Alternatively you could enter the IP address or IP address range of the site. This might look like **`192.168.5.204-192.168.5.208`**.

Alternatively, if you want the Webcache to cache and use the material from the site for a week, select *Pin for one week* instead of *Never Cache*.

You must follow all of the rules listed in the "Domain Name System Syntax" and "IP Address Rules" section in Chapter 1 when adding an entry in the Cache Control List.

Loading Entries From a File Into the Cache Control List

To load a list of domain names, IP addresses or IP address ranges into the Cache Control List:

1. Log in to the Web interface.
2. Click *Caching* on the Toolbar.
3. Select *Cache Control* > *Load List From File* in the Navigation Tree.
4. In the *Name of File To Load* field enter the full pathname of the file that you want to load.

   You can click *Browse* to search for the location of a file.
5. Select *Replace the Current Cache Control List* to replace the current Cache Control List with the list of Web sites in the file that you are loading, or select *Merge with the Current Cache Control List* to merge the two lists together.

   You should choose to replace the current list if you have a complete list of entries in an external file that you want to use to overwrite the list on the Webcache.

   You should choose to merge with the current list if you have a partial list of entries in an external file that you want to add to the list on the Webcache.
6. Select *Load* to load the new list.

The load list process may take a few seconds to complete, depending on the number of entries in the file.

Load List Rules

There are certain rules that you must follow when loading a list of domain names, IP addresses or IP address ranges into the Cache Control List. The file must be a plain text file with the following restrictions:

- Each entry must be on a separate line.
- Each entry comprises A DNS domain name, IP address or address range followed by a space then the caching time in hours.

- The caching time, in hours, must have one of the following values `0`, `24`, `48`, `168`, where `0` is equivalent to *Never Cache* and indicates that the site should not be cached.
- The Cache Control List can contain a maximum of 900 entries. If loading the file results in more than 900 entries in the Cache Control List, all subsequent entries after the limit has been reached will not be loaded into the List.

Valid examples are:

```
www.3com.com 0

www.domain1.com 2

www.domain2.com 24

215.115.0.0 48

216.115.0.0-216.115.255.255 168
```

You must follow all of the rules listed in "Domain Name System Syntax" on page 28 and "IP Address Rules" on page 27.

Saving the Cache Control List

You can save the current Cache Control List to an external text file. This allows you to modify and then load the file back onto the Webcache using the *Load List From File* command, or to load and re-use the list on another Webcache.

To save the Cache Control List:

1. Log in to the Web interface.
2. Click *Caching* on the Toolbar.
3. Select *Cache Control* > *Save List To File* in the Navigation Tree.
4. Click *Save*. The File Download screen is displayed.
5. Select *Save this file to disk* and enter a filename and location to save the file to.

The save list process may take a few seconds to complete, depending on the number of entries in the list.

Clearing the Cache Control List

You can use the Clear List screen to delete all the current entries in the Cache Control List.

To clear the Cache Control List:

1. Log in to the Web interface.
2. Click *Caching* on the Toolbar.
3. Select *Cache Control* > *Clear List* in the Navigation Tree.
4. Click *OK* to clear the Cache Control List.

The clear list process may take a few seconds to complete, depending on the number of entries in the list.

You can choose to clear the Cache Control list even if Cache Control is currently disabled.

Clearing the Cache

You can clear the cache to remove all cached Web content or all DNS information from the Webcache. To clear the cache:

1. Log in to the Web interface.
2. Click *Caching* on the Toolbar.
3. Select *Clear Cache* in the Navigation Tree.
4. Choose one of the following options:
   - Clear DNS Cache — The Webcache will erase all cached information linking domain names to IP addresses. The next time the Webcache needs to query a Web server it will request the address of the web server from another DNS server. Use this option if a Web site has moved servers and you are no longer able to reach it.
   - Clear Cached Web Objects — The Webcache will erase all cached Web pages and images. The next time a client requests content from a Web server the Webcache will need to fetch this content from the Web server as it will not have any cached Web objects. Use this option if you have recently activated or updated the Cache Control list.
5. Click *OK*.

Clearing the cache will slow down the access for your clients and increase the WAN bandwidth that you use, until the Webcache has built up a cache of DNS entries and Web objects.

Cache Bypass

Cache Bypass allows you to prevent the Webcache from processing Web requests that cannot be served successfully when the Webcache is deployed in Transparent cache mode. Cache Bypass is useful in the unlikely event that you have a Transparent cache deployment (not Proxy Relay) and find a Web site that does not operate correctly with the Transparent cache. A small number of Web sites perform IP address validation with the client machine that sent the Web request and will refuse a connection if a Transparent Webcache is present.

If you administer an NBX system you may find that the Webcache times out when retrieving Call Logging information. If this happens, add the IP address of your NBX system to the Client Bypass list.

3Com maintains a list of IP addresses of Websites that do not work correctly with Transparent Webcaches. Please check 3Com's Knowledgebase for the current list. Enter the following URL into your Web browser:

`http://knowledgebase.3com.com`
(correct at time of publication)

Cache Bypass allows you to prevent the Webcache from being involved in requests to those particular Web sites. All requests to the Web sites that you include in the Cache Bypass lists will completely bypass the Webcache and go straight to the origin servers, ensuring that the Web sites that did not work with a Transparent cache will function correctly.

The Web requests will not appear in the Access Log and will not be subject to the access control settings that you make in the Web Site Blocking or Filtering Exclusion commands.

Changes that you make to Cache Bypass are performed without interrupting the caching service. The changes may, however, take a few seconds to be implemented.

You can create two types of Cache Bypass list:

- **Client Bypass List**

  You can create a list of client machine IP addresses or address ranges. All Web requests from those client machines will bypass the Webcache and go straight to the origin server.

- **Web Site Bypass List**

You can create a list of Web site IP addresses or address ranges. All requests from client machines to those domains will bypass the Webcache and go straight to the origin server.

You can only use Cache Bypass lists when the Webcache is deployed in Transparent Cache mode. For further information, see "Transparent Cache Deployment" on page 36.

Setting Up Cache Bypass

To set up Cache Bypass using the Web interface:

1. Log in to the Web interface.
2. Click *Caching* on the Toolbar.
3. Select *Cache Bypass > Setup Cache Bypass* in the Navigation Tree.
4. Check *Enable Cache Bypass*.

This process may take a few seconds to complete.

Creating Cache Bypass Lists

There are two types of Cache Bypass List that you can create, Client Bypass and Web Site Bypass. The method for creating each type of list is the same. Each list contains the IP addresses or IP address ranges of the client machines or Web sites that you want to bypass and both list types are created in the following ways:

- Manually entering each IP address or IP address range in the Edit Client Bypass List or Edit Site Bypass List screens.
- Loading an existing list of IP addresses or IP address ranges from an external text file in the Load List From File screen.
- A combination of the above methods.

Manually Entering an IP Address Into the Cache Bypass Lists

To manually enter an IP address or IP address range in the Client Bypass List or Web Site Bypass List:

1. Log in to the Web interface.
2. Click *Caching* on the Toolbar.
3. Select *Cache Bypass > Edit Client Bypass List* **or** *Edit Site Bypass List* in the Navigation Tree.
4. In the *Enter the IP Address to add to the Client/Web Site Cache Bypass List* field, enter the IP address or IP address range of the client machine(s)

or Web sites that you want to add to the list and click *Add*. Repeat this for each IP address that you want to bypass.

Example

You can enter `216.115.0.0-216.115.255.255` to bypass that IP address range, or enter `216.115.105.2` to bypass that IP address.

You must follow all of the rules listed in "IP Address Rules" on page 27 when adding an entry in the Client Bypass List.

5 If you want to remove an entry from the list, click on an entry in the list and click *Remove*. To delete all entries at once, click *Remove All*.

The edit list process may take a few seconds to complete, depending on the number of entries in the list.

Loading Entries From a File Into the Cache Bypass Lists

To load a list of client machines or Web sites into the Client Bypass List and Web Site Bypass List respectively:

1 Log in to the Web interface.

2 Click *Caching* on the Toolbar.

3 Select *Cache Bypass* > *Load List From File* in the Navigation Tree.

4 Select the specific Cache Bypass list that you want to load the file into by clicking *Load Into Web Client Bypass List* or *Load Into Web Site Bypass List*.

5 In the *Name of File To Load* field enter the full pathname of the file that you want to load.

You can also click *Browse* to search for the location of the file.

6 Select *Replace the Current Cache Bypass List* to replace the current Cache Bypass List that you have selected with the list in the file that you are loading, or select *Merge with the Current Cache Bypass List* to merge the two lists together.

You should choose to replace the current list if you have a complete list of entries in an external file that you want to use to overwrite the list on the Webcache.

You should choose to merge with the current list if you have a partial list of entries in an external file that you want to add to the list on the Webcache.

7 Select *Load* to load the new list.

The load list process may take a few seconds to complete, depending on the number of entries in the file.

Load List Rules

There are certain rules that you must follow when loading a list of Web sites into the Client Bypass and Web Site Bypass Lists. The file must be a plain text file with the following restrictions:

- Each entry must be on a separate line.
- Each line must not exceed 32 characters in length.
- Blank lines are ignored.
- There must be no spaces at the beginning of a line.
- The Client Bypass List and Web Site Bypass List can each contain a maximum of 900 entries. If loading the file results in more than 900 entries in the List, all subsequent entries after the limit has been reached will not be loaded into the List.

You must also follow all of the rules listed in "IP Address Rules" on page 27.

Saving the Cache Bypass Lists

You can save the current Cache Bypass Lists to an external text file. This allows you to modify and then load the file back onto the Webcache using the *Load List From File* command, or to load and re-use the list on another Webcache.

To save the Cache Bypass Lists:

1. Log in to the Web interface.
2. Click *Caching* on the Toolbar.
3. Select *Cache Bypass* > *Save List To File* in the Navigation Tree.
4. Select the specific Cache Bypass list that you want to save by clicking *Save Web Client Bypass List* or *Save Web Site Bypass List*.
5. Click *Save*.
6. The File Download screen is displayed. Select *Save this file to disk* and enter a filename and location to save the file to.

The save list process may take a few seconds to complete, depending on the number of entries in the list.

Clearing the Cache Bypass Lists

You can use the Clear List screen to delete all the current entries in the Cache Bypass List(s).

To clear the Cache Bypass List(s):

1. Log in to the Web interface.
2. Click *Caching* on the Toolbar.
3. Select *Cache Bypass* > *Clear List* in the Navigation Tree.
4. Select the specific Cache Bypass list that you want to clear by clicking *Clear the Client Bypass List* or *Clear the Web Site Bypass List* or both.
5. Click *OK* to clear the list(s) that you have selected.

The clear list process may take a few seconds to complete, depending on how large the list is.

You can choose to clear the Cache Bypass List(s) even if Cache Bypass is currently disabled.

12 PRELOADING CONTENT

This chapter contains information about preloading Web sites into your Webcache before they are requested by clients browsing the Web. It is split into the following sections:

- Introduction
- Setting up Content Preload
- Preloading a Site
- Checking the Status of Scheduled Tasks
- Using the 3Com Web Scheduler Browser Client

Introduction

The Preload Content Feature enables the administrator and other authorized users to preload required sites onto the Webcache before they are requested. These preloads can be done manually or run on a schedule outside working hours and enable you to store content in the Webcache that you know will be required by a client's Web browser.

Preloading content will not cache dynamic Web pages such as those served from Web searches or those pages disallowed by use of a robots.txt file.

As part of these preloads, the administrator may also specify a content lifetime for the Web pages that are preloaded. The Content Lifetime ensures that the content, once preloaded is guaranteed to be a cache hit for a period of time. The lifetime rules will override any server HTTP cache control directives (excluding dynamic content and pages marked 'no-cache' by the Web server), and remove the need for any freshness checks by the Webcache itself.

Cache Control settings take precedence over Content Preload. If a site is marked as Never Cache *in Cache Control then it will never be cached even if Content Preload gives it a Cache Lifetime.*

Advantages and Disadvantages of Preloading Content

Preloading content results in a faster response time for the clients of the Webcache and less activity across your Internet connection. Any request made for a Web page within its Content Lifetime will not result in any traffic external to your network as the Webcache is able to serve the page from the cached content. Additionally, preload tasks can be scheduled when your network is quietest, for example by using spare WAN bandwidth at night.

When preloading content, care needs to be taken with the Content Lifetime that is set. A site that is accessed within its Content Lifetime will be served from the Webcache without reference to the origin server. Preloading a daily news Web site with a Content Lifetime of one week will result in your users seeing the same day's news for the seven day period. Even pinning the content for a day will result in your users missing out on any news flashes and possibly seeing the previous days news if the content is preloaded before the site is refreshed.

In summary, preloading content:

- Saves the WAN bandwidth of your network.

- Speeds up Web access within your network.
- May delay current content reaching your users if used inappropriately.

Methods of Preloading Content

The Webcache offers two methods of scheduling the preloading of content:

- Using the Web interface — Content can be preloaded using commands on the Content Preload menu. These commands allow an administrator to examine and edit existing tasks, schedule new tasks and change global Preload Content settings. See "Setting up Content Preload" below, "Preloading a Site" on page 196 and "Checking the Status of Scheduled Tasks" on page 199.
- Using the 3Com Web Scheduler Browser Client — The Webcache is shipped with a Browser plug-in for Microsoft Internet Explorer that allows designated users to schedule Content Preload tasks. See "Using the 3Com Web Scheduler Browser Client" on page 201

Setting up Content Preload

The Content Preload feature can be configured so that it minimizes the impact on the amount of bandwidth used by your users. The preload tasks can be scheduled to run individually at specific times. This allows you to preload content when you know there is particularly low WAN network usage — for example, at night. You can also configure the Webcache to adjust its bandwidth use for preload tasks at particular hours on particular days of the week.

To set up Content Preload:

1. Log in to the Web interface.
2. Click *Caching* on the toolbar.
3. Select *Content Preload* > *Setup Preload* to see the *Setup Content Preload* window.
4. Ensure that the *Enable Content Preload* box is checked to allow preloads to be scheduled and to configure the other settings in the *Setup Content Preload* window.
5. Select the days on which you want to restrict the bandwidth available to the Content Preload tasks.
6. Select the hours between which you want to restrict the bandwidth available to the Content Preload tasks by clicking on the hours listed in the two drop-down boxes.

By default, the Webcache will limit the bandwidth used for preload tasks to 10Mbits/s between the selected times. The hours selected will have no effect on days where the bandwidth has not been restricted.

7 Enter the maximum bandwidth that the Webcache is to use for preload tasks during restricted times. You may enter the amount in kilobits per second (Kbit/s) or megabits per second (Mbit/s). Select the units you have used from the drop-down box.

1 Mbit/s = 1,000 Kbit/s = 1,000,000 bps (bits per second)

The maximum bandwidth only takes effect during the restricted times as set in steps 5 and 6 above. To set a global maximum, ensure that all the day boxes are checked and set the hours to 00:00 *and* 23:59.

8 To enable verbose logging ensure that the *Verbose Preload Task Logs* box is checked. This will increase the size of the log files but provides more information for administrators.

9 To enable the 3Com Web Scheduler Browser Client ensure that the *Enable 3Com Web Scheduler Browser Client* box is checked. Enabling the Web Scheduler Browser Client allows users who do not have the administration password to set up Preload Tasks using Internet Explorer. If you do not check this box the *3Com Web Scheduler Browser Client* will not be able to access or create preload tasks on the Webcache. See "Using the 3Com Web Scheduler Browser Client" on page 201.

10 If you have enabled the Web Scheduler Browser Client click the *Change Password* button and enter a password in the *Password* box. You must supply this password to users of the Web Scheduler Browser Client to allow them to use this feature. See "Using the 3Com Web Scheduler Browser Client" on page 201.

The default preload password is preload. *3Com recommends that you change the password from its default value.*

11 Click the *OK* button to save your changes or the *Cancel* button to close the window without making any changes.

Preloading a Site

The Webcache supports the preloading of a site either automatically to a regular schedule or manually as a one-time preload. In addition you can specify how much of a Web site is to be preloaded.

Adding/Editing Scheduled Tasks

To define a preload task:

1 Log in to the Web interface.

2 Click *Caching* on the toolbar.

3 Select *Content Preload* > *Preload Tasks* > *Preload Tasks* to see the *Edit Preload Tasks* window.

4 To add a new *Preload Task*, click *Add*. To edit an existing *Preload Task*, highlight the task in the list and click *Edit*.

5 If you are adding a new *Preload Task*, choose a name for the task. The name must be unique and should be descriptive of the task you are adding.

If you are editing a Preload Task, the name of the task will be greyed out as you cannot rename tasks once created.

6 Enter or amend the *Starting URL* for the task. This is often the base URL for a site e.g. **`http://www.3com.com`** but can be any URL that you can enter from a Web browser.

7 Select *Recursion Level* from the drop-down box. The *Recursion Level* determines how deep the Webcache is to scan when looking for pages to preload. Selecting *None* will preload only the *Starting URL* and the images contained on the page. Selecting *1* will preload not only the *Starting URL* and its images but each page linked from it. You may recurse up to five pages deep.

8 Select *Content Lifetime* from the drop-down box. The Content Lifetime determines how long the Webcache will assume the preloaded content is current and therefore a cache hit, before reverting back to using its standard checks that may involve revalidation of the content with the Web server.

9 Check the *Follow Links to Different Hosts* box to allow the preload task to follow links to other web sites. The Web pages you frequently preload will contain links to other web sites in a different domain. For example, **`http://www.amazon.com`** may contain a direct link to **`http://www.toysrus.com`**. You can control whether the preload task follows such links when recursing, or whether the task will remain only within the initial web site. Normally, you will want to follow links to other web sites. To prevent this content being preloaded ensure that the box is cleared.

10 Select the frequency of the preload task from *Every Hour*, *Every Day*, *Every Week* or *Once*.

11 Select the start time from the *at:* drop-down box. The preload task will start at the specified time of day but will not have a guaranteed finish time since it is conditional on the Web site and the performance of the Internet. Allocate plenty of time to run the preload task so the Web content is available when you need it.

12 Select the start day from the *on* drop-down box. The day will be grayed out if you previously selected a preload frequency of *Every Hour* or *Every Day*.

13 Click *OK* to save your changes or *Cancel* to return without saving.

If the preload task has not finished before its next scheduled start time, the Webcache will ignore the new schedule and complete the current schedule. The preload task will then attempt to run again at the next scheduled start time.

Temporarily Disabling a Scheduled Task

To disable a scheduled task without deleting it:

1 Log in to the Web interface.

2 Click *Caching* on the toolbar.

3 Select *Content Preload* > *Preload Tasks* > *Preload Tasks* to see the *Edit Preload Tasks* window.

4 Select a Preload Task from the list.

5 Click *Disable*.

If there is an Enable *button displayed on the window when you have selected a task then the task has already been disabled. Click* Enable *to re-enable the task.*

6 Click *OK* to return to the Web interface.

Forcing a Preload Task to Start Immediately

To force a Preload to start immediately:

1 Log in to the Web interface.

2 Click *Caching* on the toolbar.

3 Select *Content Preload* > *Preload Tasks* > *Preload Tasks* to see the *Edit Preload Tasks* window.

4 Select a Preload Task from the list.

5 Click *Preload Now*. The preload will start regardless of the scheduled time.

6 Click *OK* to return to the Web interface.

You can only force one preload task at a time. If you try to force a preload task whilst another is running, you will be given the option to abort the current task. Aborting the current task will allow the new task to run.

Deleting Scheduled Tasks

To delete a preload task:

1 Log in to the Web interface.

2 Click *Caching* on the toolbar.

3 Select *Content Preload* > *Preload Tasks* > *Preload Tasks* to see the *Edit Preload Tasks* window.

4 Select a *Preload Task* from the list.

5 Click *Remove*.

To delete all the tasks click Remove All *and confirm the action at the popup. There is no need to highlight a task first.*

6 Click *OK* to return to the Web interface.

Checking the Status of Scheduled Tasks

After performing a preload task, you can check to see if the task was successful and whether it retrieved the Web pages you required. To check the status of currently scheduled preload tasks:

1 Log in to the Web interface.

2 Click *Caching* on the toolbar.

3 Select *Content Preload* > *Preload Tasks* > *Preload Status* to see the *Preload Task Status* window. The following items will be displayed:

- Name — The name of the task.
- Start URL — The base URL that was specified as the starting point for the preload task.
- Current State — Indicates whether the task is *Enabled*, *Disabled* or *Active* (currently running).

- Last Complete Status — Shows if the preload task failed. A preload task has failed if no Web objects were retrieved. If the task retrieved any objects the word *OK* is displayed.
- Last Complete Time — Displays the time at which the task last completed. Subtracting the Start Time from this figure gives the amount of time the task took to complete.

Running multiple tasks at the same time may cause each task to take longer to complete. Scheduling regular tasks at different times may speed up the execution of each task and have less impact on your network.

4 To refresh the view, for example to see if a task has completed, click *Refresh*.

5 Click *Finish* to return to the Web interface.

Viewing Details of Scheduled Tasks

To view details of a preload task:

1 Log in to the Web interface.

2 Click *Caching* on the toolbar.

3 Select *Content Preload* > *Preload Tasks* > *Preload Status* to see the *Preload Task Status* window.

4 Highlight a task and click *View Detail*. The following items will be displayed:

- Name — The name of the task.
- Start URL — The base URL that was specified as the starting point for the preload task.
- Recursion — Shows the depth of links that will be preloaded.
- Last Completion Status — Shows any errors the task may have encountered. If the task completed without error the word *OK* is displayed.
- Last Completion Time — Displays the time at which the task last completed. Subtracting the Start Time from this figure gives the amount of time the task took to complete.
- Objects Retrieved — Shows the number of web pages, images and other embedded items that have been retrieved. If the task is currently active this number can be updated by clicking the *Refresh* button.

- Error Count — Shows the number of errors encountered while completing the task. Errors may be caused by missing images, broken links between Web pages or by heavy traffic causing requests by the Webcache to time out. If the task is currently active this number can be updated by clicking the *Refresh* button. Details of the errors can be seen in the Debug Output.
- Preload Task Log — This text box contains a full listing of every transaction between the Webcache and the Web server being preloaded. For all but the smallest preload tasks this contains a very large amount of text. It can be used to track errors.

5 To refresh the view, for example to see if a task has completed, click *Refresh*.

6 Click *Done* to return to the *Preload Task Status* screen.

7 Click *Finish* on the *Preload Task Status* screen to return to the Web interface.

Using the 3Com Web Scheduler Browser Client

The 3Com Web Scheduler Browser Client is a browser plug-in that allows designated users to create, view, amend preload tasks without accessing the Web interface of the Webcache. When using the Web Scheduler:

- The user does not need administrator access to the Webcache.
- The user can specify preloads from different Web sites and with differing recursion levels as part of the same preload task.

The 3Com Web Scheduler Browser Client *is designed for use with Internet Explorer 5 or later and is on the CD-ROM supplied with your Webcache.*

Configuring the Webcache for the 3Com Web Scheduler Browser Client

To stop unauthorised users from scheduling preload tasks, access to the Webcache from the 3Com Web Scheduler Web Browser Client is protected by a password. You must supply this password to users of the 3Com Web Scheduler Web Browser Client.

To set the Preload Plug-in password

1 Log in to the Web interface.

2 Click *Caching* on the toolbar.

3 Select *Content Preload* > *Setup Preload* to see the *Setup Content Preload* window.

4 Ensure that the *Enable 3Com Web Scheduler Browser Client* box is checked.

5 Click the *Change Password* button, choose a password for the *3Com Web Scheduler Browser Client*, and enter it in the *Password* box. You must supply this password to users of the *3Com Web Scheduler Browser Client* to allow them to use this feature.

> *The default preload password is* preload. *3Com recommends that you change the password from its default value.*

6 Click the *OK* button to save your changes or the *Cancel* button to close the window without making any changes.

Installing the 3Com Web Scheduler Browser Client

The 3Com Web Scheduler Browser Client can be found on the CD–ROM supplied with your Webcache. Table 8, below, shows the requirements of the Web Scheduler Browser Client.

Table 8 3Com Web Scheduler Browser Client Requirements

Requirement	Minimum	Recommended
Processor	266 MHz Pentium II	500 MHz Pentium III
RAM	64 MB	128 Mb
Free hard disk space	15 MB	15 MB
Display	SVGA, 256 colors, 800 x 600	SVGA, 256 colors; 1024 x 768
Network Interface Card (NIC)	Yes	Yes
CD-ROM drive or an Internet connection	A CD-ROM drive (2x speed or higher) is required if Web Scheduler is installed from CD-ROM. An Internet connection is required if Web Scheduler is downloaded from the web.	
Operating system	Web Scheduler works with these operating systems: Windows 95, Windows 98 SE, Windows ME, Windows 2000 Professional, Windows NT v4.0 Workstation, Windows XP	
Software	Microsoft Internet Explorer v5.0 or later. Web Scheduler does not support Netscape browsers.	

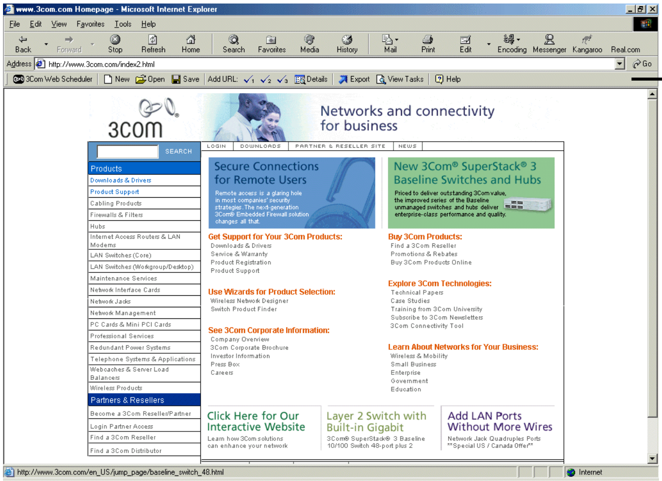
To install the 3Com Web Scheduler Browser Client on a client machine:

1 Insert the CD in the drive of the client machine, allow it to autostart and select *Install 3Com Web Scheduler Browser Client* from the menu.

> *If your CD does not autostart the Web Scheduler Browser Client can be installed by running the setup program from the CD.*

2 Follow the instructions displayed during the install. When completed start Internet Explorer to display the toolbar shown in Figure 36 below.

Figure 36 3Com Web Scheduler Browser Client


www.3com.com Homepage - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites Media History Mail Print Edit Encoding Messenger Kangaroo Real.com
Address
Go
3Com Web Scheduler New Open Save Add URL: ✓1 ✓2 ✓3 Details Export View Tasks Help
3com
SEARCH
LOGIN DOWNLOADS PARTNER & RESELLER SITE NEWS
Products
Downloads & Drivers
Product Support
Cabling Products
Firewalls & Filters
Hubs
Internet Access Routers & LAN Modems
LAN Switches (Core)
LAN Switches (Workgroup/Desktop)
Maintenance Services
Network Interface Cards
Network Jacks
Network Management
PC Cards & Mini PCI Cards
Professional Services
Redundant Power Systems
Telephone Systems & Applications
Webcaches & Server Load Balancers
Wireless Products
Partners & Resellers
Become a 3Com Reseller/Partner
Login Partner Access
Find a 3Com Reseller
Find a 3Com Distributor
Get Support for Your 3Com Products:
Downloads & Drivers
Service & Warranty
Product Registration
Product Support
Use Wizards for Product Selection:
Wireless Network Designer
Switch Product Finder
See 3Com Corporate Information:
Company Overview
3Com Corporate Brochure
Investor Information
Press Box
Careers
Buy 3Com Products:
Find a 3Com Reseller
Promotions & Rebates
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Secure Connections for Remote Users

Remote access is a glaring hole in most companies' security strategies. The next-generation 3Com® Embedded Firewall solution changes all that.

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http://www.3com.com/en_US/jump_page/baseline_switch_48.html

Toolbar

3 Click on the *Options* button on the Web Scheduler Browser Client. The *3Com Web Scheduler Options* window will pop up.

4 In the *Connection* tab of the window enter the IP address of the Webcache and the Preload Account Password (as set up in "Configuring the Webcache for the 3Com Web Scheduler Browser Client" on page 201).

5 In the File Location tab of the window enter the location where the user is to store their preload tasks ready for transfer to the Webcache.

6 Click *OK* to complete the configuration.

VI MONITORING THE WEBCACHE

13 MONITORING SYSTEM EVENTS

This chapter contains information about the system events that can occur on the Webcache 1000/3000. It covers the following topics:

- System Events
- Email Notification
- SNMP Traps
- Automatic System Events

System Events

System events are events that occur on the Webcache which can be reported to you. They range in significance from minor, such as New Software Upgrade Detected, to major, such as System Error. You can configure the Webcache to automatically inform you about these events using email notification and SNMP traps. Such notification allows you to respond more quickly to Webcache events and helps save you valuable time and effort. It is an important element in the remote management of the Webcache.

Email Notification

You can configure the Webcache to automatically send emails to specified email accounts when certain significant system events occur. The emails are generated internally within the Webcache in a fixed format that is also used by 3Com Network Supervisor. The emails can be sent to as many accounts as you like.

3Com recommends that you enable Email Notification to ensure that you have the most detailed information about the operation of the Webcache.

Configuring Email Notification

To configure Email Notification using the Web interface:

1 Log in to the Web interface.

2 Click *Device* on the Toolbar.

3 Select *System* > *Management* > *Events* > *Email Notification* in the Navigation Tree. The Email Notification screen is displayed.

4 Check *Enable Email Notification of System Events*.

5 In the *SMTP Server Name/IP Address* field, enter the Domain Name Server (DNS) name or IP address of the server to which the email notifications from the Webcache will be sent.

6 In the *From Addresses for Notifications* field, enter the address of the email account from which the email notifications will appear to be sent from.

CAUTION: *You will not be able to successfully configure Email Notification if you do not enter a valid email address. A valid email address is a fully specified address containing a domain name, for example “webcache@3com.com”. The partial address “webcache” would be rejected by the server.*

3Com recommends that you use the domain name of the Webcache as the email address. If you have entered "webcache" as the host name and "mycompany.com" as the DNS domain name of the Webcache, then you would enter "webcache@mycompany.com" as the email address.

7 In the *To Addresses to Receive Notifications* field, enter the addresses of all the email accounts that will receive the email notifications. Ensure that you separate each address with a comma. You can enter up to 255 characters in this field.

8 Check *Enable SMTP Authentication* if you want to enable SMTP Authentication for Email Notification.

9 In the *SMTP Username* field, you must enter the SMTP username that is required by the SMTP server.

10 In the *SMTP Password* field, you must enter the SMTP authentication string that is required by the SMTP server.

11 In the *Realm/Domain Name* field, you can enter the Unix realm or Windows domain that the SMTP user belongs to, or leave the field blank.

For further information about how SMTP Authentication operates on the Webcache, see "SMTP Authentication" on page 210.

12 You can configure the Webcache to send an email notification when certain system events occur by checking the relevant boxes:

- **Webcache Software Upgrade Events**

  This includes the following events:

  - A new software upgrade is available.

This email notification will only be sent if you have enabled automatic software upgrade detection on the Webcache. You can do this using the Upgrade Detection screen; for further information, "Detecting a Software Upgrade" on page 241.

  - The Webcache has failed to download the new software upgrade.
  - A software upgrade has succeeded.
  - A software upgrade has failed.

- **Webcache System Failure Events**

  This includes the following events:

  - A cache storage device has failed.

- **Content Preload Events**

  This includes the following events:

  - A preload task has failed.

- **Content Filtering Events**

  This includes the following events:

  - The content filter license has expired.
  - The Websense Enterprise server is unreachable.

In addition to the above, the Webcache automatically generates the email notifications shown in "Automatic System Events" on page 214.

You can send a test email to the SMTP server immediately by clicking Send Now. *You may want to do this to test that the Email Notification settings are correct. The Webcache will indicate if the test email has been sent successfully or not. If there is a problem it may take up to one minute for the Send Now operation to time out depending on the type of problem.*

SMTP Authentication

If you choose to configure Email Notification or Email Graphs on the Webcache, you can enable and configure Simple Mail Transfer Protocol (SMTP) Authentication.

Enabling SMTP Authentication

You can enable SMTP Authentication for Email Notification or Email Graphs by checking *Enable SMTP Authentication* and specifying an SMTP Username and SMTP Password. The SMTP server will attempt to authenticate email in the following way:

- If the SMTP server reports that it cannot perform authentication, the email will fail. An entry is made in the Webcache's System Log to record the failure.
- If the SMTP server can perform authentication, the Webcache will automatically use the strongest form of authentication supported by both the Webcache and SMTP server. It attempts to use CRAM-MD5 and Plain authentication in that order. CRAM-MD5 authentication prevents the username and password from being sent as clear text. Plain authentication sends the username and password as clear text.

  The SMTP server must support CRAM-MD5 authentication for the Webcache to use that method. CRAM-MD5 is an option in Unix SMTP servers such as Sendmail. You must configure Sendmail to use a type of SMTP authentication. Windows Exchange does not support

CRAM-MD5. Both Windows Exchange and Unix servers support Plain authentication.

Disabling SMTP Authentication

If you disable SMTP Authentication by leaving *Enable SMTP Authentication* blank and not specifying an SMTP Username and SMTP Password, the SMTP server will attempt to authenticate email in the following way:

- If the SMTP server reports that it cannot accept unauthenticated email, the email will fail. An entry is made in the Webcache's System Log to record the failure.
- If the server can accept unauthenticated email, the email will be sent.

In all cases, if an email fails, an entry is made in the Webcache's System Log; for further information, see "System Log" on page 230.

Specifying Realms and Domains

If you enable SMTP Authentication you can optionally enter the Windows domain or Unix realm that the SMTP user that you have specified belongs to. You may need to do this if your SMTP server supports multiple email domains from the same server.

Example

If you create an SMTP email user called Webcache_Admin in your Windows Exchange Server configuration and that user is a member of the `mycompany.com` domain, you would specify the following in the Email Notification and Email Graphs screens:

- SMTP Username: **`Webcache_Admin`**
- Realm/Domain Name: **`mycompany.com`**

If your SMTP server only has one realm/domain, you can leave the *Realm/Domain Name* field blank.

SNMP Traps

You can configure the Webcache to automatically generate Simple Network Management Protocol (SNMP) traps when certain significant system events occur. An SNMP trap is a message generated by the Webcache in response to a particular event. It is sent to a specified network management station in your network which receives and filters it. You can configure the network management station to log the generated traps, filter out the traps that you are not interested in and issue event notifications. The structure and content of the SNMP traps are defined in the Management Information Bases (MIBs) that the Webcache supports (standard MIB and Webcache MIB traps).

All of the SNMP traps that the Webcache automatically generates are shown in "Automatic System Events" on page 214.

Configuring SNMP Traps

To configure SNMP Traps using the Web interface:

1. Log in to the Web interface.
2. Click *Device* on the Toolbar.
3. Select *System* > *Management* > *Events* > *SNMP Traps* in the Navigation Tree. The SNMP Trap Destination Setup screen is displayed.
4. Enter the IP address of the network management station in your network that will handle the SNMP traps in the *IP Address of Management Station* field.

You can send a test SNMP trap to the network management station immediately by clicking Send Now*. You may want to do this to test that the SNMP Trap settings are correct.*

Configuring SNMP Community Strings

SNMP community strings authenticate access to the Management Information Bases (MIBs) in the Webcache. Community strings essentially function as "passwords" embedded in every SNMP network packet. The community string in the packet must match one of the two community strings configured in the Webcache for the message to be processed successfully. If the community string is correct, the Webcache performs the requested operation. If the community string is incorrect, the Webcache discards the request and does not respond.

There are two community strings, one for each of the following type of access:

- **Public** — A network management station that makes SNMP requests using the correct Public community string will gain read-only access to the Webcache to view its status or configuration information.
- **Private** — A network management station that makes SNMP requests using the correct Private community string will gain read and write access to the Webcache to change its status or configuration.

3Com recommends that you change the default community strings to prevent unwanted users from gaining access to the Webcache.

To change the Public and Private community strings using the Web interface:

1 Log in to the Web interface.

2 Click *Device* on the Toolbar.

3 Select *System* > *Management* > *Community* in the Navigation Tree. The SNMP Community screen is displayed.

4 Enter the community string for Private (Set/Write) requests to the Webcache in the *Private (Set/Write) SNMP community* field. The default string is `private`.

5 Enter the community string for Public (Get/Read) requests to the Webcache in the *Public (Get/Read) SNMP community* field. The default string is `public`.

You can enter a maximum of 30 characters for each community string.

You can select Reset Community Strings *to change both the Private and Public community strings back to their default values.*

Automatic System Events

Both an SNMP Trap and an Email Notification are automatically generated by the Webcache if a system event shown in Table 9 occurs.

Table 9 Automatic System Events

System Event	Email Message	SNMP Trap Message	Description
System Error	Webcache has failed and is attempting reboot.	Webcache has failed and is attempting reboot. This is a major failure. Contact 3Com Technical support.	The Webcache has failed and is attempting to reboot itself.
System Error (too many reboots)	The 3Com Webcache is in System Error. Reboot attempts have been exhausted.	The 3Com Webcache is in System Error. Reboot attempts have been exhausted. This is a critical failure. Contact 3Com Technical Support.	The Webcache has failed and the maximum number of reboot attempts has been reached.
System Error (no reboots)	Webcache is failing and declared to be in system error.	Webcache is failing and declared to be in system error. This is a critical failure. Contact 3Com Technical Support.	The Webcache has failed and is not attempting to reboot itself.
Fan Speed Warning	Fan speed warning. The <PSU/Chassis> fan is out of acceptable range. The unit is in danger of overheating. Current fan speed: <current fan speed> rpm.	N/A	The speed of the specified fan (PSU, Chassis) is outside the acceptable range and the fan may overheat.
Fan Slow	N/A	Warning, the <PSU/Chassis> fan in the Webcache has fallen to <current fan speed> rpm. This may cause overheating.	The speed of the specified fan (PSU, Chassis) is outside the acceptable range and the fan may overheat.
Fan Stopped	N/A	Warning, the <PSU/Chassis> fan in the Webcache has stopped. The Webcache may overheat. Please remove power from the Webcache unit.	The specified fan (PSU, Chassis) has stopped and the Webcache may now overheat. You must remove power from the Webcache immediately.
Fan OK	N/A	The <PSU/Chassis> fan in the Webcache has returned to normal speed.	The speed of the specified fan (PSU, Chassis) has returned to normal. You can continue to use the Webcache.

(continued)

System Event	Email Message	SNMP Trap Message	Description
Temperature Warning	Temperature warning. The <motherboard> temperature is out of acceptable range. The unit is in danger of overheating. Current temperature: <current temperature> °C.	N/A	The temperature of the specified component (motherboard) is outside the acceptable range and the component may overheat.
Temperature High	N/A	Warning, the temperature of the <motherboard> in the Webcache has risen to <current temperature> °C.	The temperature of the specified component (motherboard) is outside the acceptable range and the component may overheat.
Temperature Critical	N/A	Critical Warning, the Webcache is overheating. The <motherboard> temperature in the Webcache has risen to <current temperature> °C. Please remove power from the Webcache unit.	The temperature of the specified component (motherboard) is outside the acceptable range and the Webcache is now overheating. You must remove power from the Webcache immediately.
Temperature OK	N/A	The <motherboard> temperature in the Webcache has returned to normal.	The temperature of the specified component (motherboard) has returned to normal. You can continue to use the Webcache.
Caching Disk Failed	Cache Storage device <0,1,2> has failed in the 3Com WebCache. Please refer to the following URL for more information on resolving this failure: http://knowledgebase.3com.com/division/publisher.asp?id=2.0.77094716.3290900	'The 3Com Webcache has a disk failure for disk number: <0,1,2>.	A cache storage device within the Webcache has failed.
Upgrade Successful	The Webcache has successfully completed a software upgrade from version aa.bb-cc to version dd.ee-ff.	The Webcache has successfully completed a software upgrade from version aa.bb-cc to version dd.ee-ff.	A Software Upgrade has been successfully completed on the Webcache.
Upgrade Failed	Upgrade failed.	Upgrade failed.	A Software Upgrade has failed on the Webcache.

(continued)

System Event	Email Message	SNMP Trap Message	Description
New Software Upgrade Detected	A new software image (version <new version number>) is available for your Webcache. The Webcache is currently running <current version number>. Click here to run the Software Upgrade wizard: http://nnn.nnn.nnn.nnn	'A new image (version <aa.bb-cc>) is available for your WebCache. The current version is <dd.ee-ff>.	The Webcache has detected and downloaded a new software version that you can choose to upgrade to. The current software version on the Webcache and the software version that has been downloaded is displayed.
Software Upgrade Download Failed	3Com Webcache unable to retrieve information from upgrade detection server <server name/FTP failure message>	3Com Webcache unable to retrieve information from upgrade server. FTP status: <FTP failure message>. For server <upgrade detection server name>.	The Webcache has failed to download the new software upgrade from the FTP server.
Log FTP Failed	FTP of Webcache Log failed with error <FTP failure message>	FTP of Webcache Log failed with error: <FTP failure message>.	The Log has not been saved to the FTP server.
Invalid SNMP community string	Authentication Failure.	Authentication Failure.	The SNMP community string has not been authenticated successfully.
Content Preload Warning	The content preload for <job name> has not completed before its next scheduled start time.	The content preload for <job name> has not completed before its next scheduled start time.	The content preload is taking too long. Possibly the task is too big, scheduled too frequently or there is not enough bandwidth to complete the task
Content Preload Failure	The content preload for <job name> has failed.	The content preload for <job name> has failed.	The content preload has failed. Possible the Web site is unavailable or has been mistyped.
Content Filter Download Warning	Warning, the content filter list download to the Webcache has failed. The Webcache is not using the latest filter list.	Warning, the content filter list download to the Webcache has failed. The Webcache is not using the latest filter list.	The Webcache has been unable to download the latest filter. Check Firewall settings and WAN network access.
Content Filter License Failure	The content filtering license for the Webcache has expired. The Webcache is now offering filtering according to the default rule.	The content filtering license for the Webcache has expired. The Webcache is now offering filtering according to the default rule.	The licence has expired. Renew or switch to Manual Filtering.

System Event	Email Message	SNMP Trap Message	Description
Content Filter License Warning	The content filtering license for the Webcache has expired. The Webcache will continue to filter using the last downloaded list for a further 30 days.	The content filtering license for the Webcache has expired. The Webcache will continue to filter using the last downloaded list for a further 30 days.	The licence is about to expire. Renew within the next 30 days or switch to Manual Filtering at the end of the 30 days.

14 PERFORMANCE MONITORING

This chapter contains information about monitoring the performance of the Webcache 1000/3000. It covers the following topics:

- Performance Monitoring
- Viewing Performance Graphs
  - Viewing Caching Performance Graphs
  - Viewing System Performance Graphs
  - Viewing I/O Performance Graphs
- Emailing Performance Graphs

Performance Monitoring

Performance monitoring allows you to assess the caching and system performance of the Webcache via a series of easy-to-understand graphs.

The Caching Performance graphs show the bandwidth savings, hit/miss rate, request rate, response time and throughput for the Webcache. You can use them to find out quickly and accurately how the Webcache is performing and how much value it is providing to your network.

The System Performance and I/O Performance graphs show more detailed information which is intended for use by your System Administrator and 3Com support personnel.

Performance monitoring is always enabled; you cannot turn it off.

You can also set up automatic emailing of the performance graphs to specified email accounts, enabling you to easily demonstrate the benefits of the Webcache to other people within your organization.

Viewing Performance Graphs

The Performance graphs show detailed information about different aspects of the Webcache. They are divided into three sections:

- Caching — shows caching and filtering performance.
- IO — (Input/Output) shows disk and network performance.
- System — shows CPU and storage performance.

To view the *Performance* graphs:

1. Log in to the Web interface.
2. Select *Performance* from the toolbar.
3. Select the time period over which you want to view the Performance graphs by clicking on the appropriate folder from the navigation tree. The available time periods are *Daily Graphs*, *Weekly Graphs*, or *Monthly Graphs*.

Viewing Caching Performance Graphs

To view the Caching *Performance* graphs select *Caching* from the navigation tree. The following items will be displayed:

- **Bandwidth Saving**

  The average percentage of bandwidth savings obtained through the use of the Webcache for HTTP and FTP traffic (if cached). This is calculated as the ratio of bytes served by the Webcache to total requested bytes. A high graph rating is desirable because it indicates that the Webcache has reduced WAN bandwidth use. A low graph rating indicates the opposite.

- **Hit Rate**

  The hit rate reveals how effective the Webcache is at dealing with HTTP requests sent by clients. A full hit occurs when the Webcache serves the request without having to check with the origin server first. A revalidated hit occurs when the Webcache serves the request, only after checking with the original server that the content is current. A cache miss happens when the Webcache is unable to serve a HTTP request. The hit rate is determined by the total number of full hits and revalidated hits against the total number of requests and is registered as a percentage.

  When the Webcache is first deployed, there will be a high number of revalidated hits as the Webcache learns how to cache the content. When the Webcache learns how to cache, you should expect a higher percentage of full hits. However, some Web sites do not allow full caching so, even though the number of revalidated hits is high, it does not necessarily mean that there is a problem.

  A high hit rate indicates a more efficient operation, as the Webcache is saving requests from being sent to the Web, which speeds up response time and reduces bandwidth use. A good hit rate is 40-60%.

  The hit rate that the Webcache achieves is largely dependant upon:

  - How frequently the same request is made. The hit rate will be low if there is no revisiting of sites. Caching only works well if the same request is made frequently. The smaller the range of requests made, the more effective the Webache will be and the higher the hit rate will be.
  - Whether the content provider on the origin web site allows the content to be cached or not. Some content providers will prevent certain information from being cached.
  - Whether the content is frequently changed on the origin web site. If so, the copy held on the Webcache must be discarded, and the new version retrieved. This is treated as a cache miss.

- **Request Rate**

  The average number of client machine HTTP requests sent to the Webcache per second. A high request rate — even up to the

Webcache's peak capacity — will normally improve the caching behavior. However, a very low or zero request rate might indicate that the Webcache is not receiving the requests correctly and furthermore suggests that there is a problem with the setup and the deployment mode.

- **Hit and Miss Latencies**

  The average time per request in milliseconds that the Webcache takes to respond to client machine HTTP requests. The response time graph shows both cache hits and cache misses.

  An average response time, normally less than 100 milliseconds, indicates that the system is operating efficiently because more content is being served from the high speed Webcache, and less from the slow World Wide Web. If the response time is above-average, it may indicate a higher proportion of revalidate hits that require contact with the origin server, as shown on the Hit Rate graph in the Web Interface. Very high hit response times that require several seconds or more suggest that there may be a problem with the Webcache disk. If you suspect this, check the Disk Status LEDs on the Webcache.

- **Throughput**

  The amount of traffic in kilobits per second (Kbits/sec) between the Webcache and its clients and also between the Webcache and the Web servers.

1 Kbit/sec = 1,000 bps (bits per second)

- **Client Connections**

  The number of TCP/IP connections currently open when the Webcache plots a point on the graph. Each client will typically make several connections to the Webcache when fetching a web page.

- **Abort and Error Rate**

  The percentage of client connections that resulted in an error or were aborted by client before the data was served. If the error rate is greater than 30%, it may indicate that the Webcache has problems communicating with the Web servers over the Internet. An abort rate of over 30% is considered high and may indicate that clients consider the performance too poor and subsequently abort the request to download pages. If this happens, there may be a performance problem with the Webcache.

  Causes of aborts and errors include:

  - Clients looking for servers that do not exist.
  - Clients hitting the stop button on their browser before the page is loaded.
  - Connections timing out due to excessive traffic.

- **Filtering Block Rate**

  The percentage of requests from users that were blocked or logged by 3Com Web Site Filtering and Manual Filtering.

  If Websense Enterprise filtering is enabled, the Filtering Block Rate *will always show zero.*

Viewing I/O Performance Graphs

To view the Input/Output *Performance* graphs select *IO* from the navigation tree. The following items will be displayed:

- **Disk Activity**

  The average number of disk operations per second to the caching disk(s). The Webcache may read or write several pieces of information to disk in one operation so this will not reflect the number of items written to and read from the cache file.

- **Disk Blocks**

  The number of blocks of data read from and written to the caching disk(s) per second.

- **Network Packets**

  The average number per second of TCP packets sent to and received by the Webcache. The difference between the *Packet Transmitted* and *Packet Sent* lines on the graph shows the bandwidth saving.

- **TCP Connections Rate**

  The average number per second of TCP connections established by clients to the Webcache.

- **TCP Sends and Retransmits**

  The number of packets sent by the Webcache and the number of packets that have been retransmitted because of network errors and network congestion.

- **DNS Hit Rate**

  The average percentage of Domain Name System (DNS) server requests served by the Webcache. This is calculated as the ratio of host database hits to host database requests.

The Webcache has its own internal cache of DNS entries. The DNS Hit Rate shows how effective this cache is being in avoiding DNS lookups to the DNS server.

Viewing System Performance Graphs

To view the *System Performance* graphs select *System* from the navigation tree. The following items will be displayed:

- **CPU Load**

  The average and maximum percentage of load on the Webcache's central processing unit (CPU).

- **Memory Usage**

  The average amount of physical memory in megabytes that is being used in the Webcache.

- **Buffers and Cached Memory Usage**

  The amount of memory in megabytes used by the Webcache's operating system as buffer memory and cache memory.

- **Swap Usage**

  The amount of disk space in megabytes used by the Webcache's operating system as swap space.

- **Cache Storage Usage**

  The percentage of the caching disk(s) currently in use. Space is cleared on the caching disk(s) only when it is needed. The Webcache does not contain any cached articles when it is first deployed so the Cache Storage Graph starts at 0% and increases towards 100% as articles are cached. If the cache is cleared, the Cache Storage Graph will return to 0%.

Emailing Performance Graphs

You can set up automatic emailing of the performance graphs to specified email accounts, enabling you to easily demonstrate the benefits of the Webcache to other people within your organization. You can specify how often the performance graphs are emailed and who the emails are sent to. Each graph is attached to the email in PNG file format. The email also contains text that indicates which Webcache sent the email, the date on which the email was sent and the period of time that the graphs cover.

Configuring Email Performance Graphs

To configure Email Performance Graphs using the Web interface:

1 Log in to the Web interface.

2 Select the *Performance* from the toolbar.

3 Select *Email Graphs* in the Navigation Tree. The Email Performance Graphs screen is displayed.

4 Check *Enable Emailing of Performance Graphs*.

5 Select how often you want the performance graphs to be emailed:

- *Daily* — Sent at Midnight every day.
- *Weekly* — Sent at Midnight on the Monday of each calendar week.
- *Monthly* — Sent at Midnight on the 1st of each calendar month.

6 In the *SMTP Server Name/IP Address* field, enter the Domain Name Server (DNS) name or IP address of the server to which the email notifications from the Webcache will be sent.

7 In the *From Address for Graph Email* field, enter the address of the email account from which the performance graphs will appear to be sent from.

CAUTION: *You will not be able to successfully configure Email Performance Graphs if you do not enter a valid email address. A valid email address is a fully specified address containing a domain name, for example "webcache@3com.com". The partial address "webcache" would be rejected by the server.*

3Com recommends that you use the domain name of the Webcache as the email address. If you have entered "webcache" as the host name and "mycompany.com" as the DNS domain name of the Webcache, then you would enter "webcache@mycompany.com" as the email address.

8 In the *To Addresses to Receive Emails* field, enter the addresses of all the email accounts that will receive the performance graphs. Ensure that you separate each address with a comma. You can enter up to 255 characters in this field.

9 Check *Enable SMTP Authentication* if you want to enable SMTP Authentication for Email Performance Graphs.

10 In the *SMTP Username* field, you must enter the SMTP username that is required by the SMTP server.

11 In the *SMTP Password* field, you must enter the SMTP authentication string that is required by the SMTP server.

12 In the *Realm/Domain Name* field, you can enter the Unix realm or Windows domain that the SMTP user belongs to, or leave the field blank.

For further information about how SMTP Authentication operates on the Webcache, see "SMTP Authentication" on page 210.

You can send a test email to the SMTP server immediately by clicking Send Now. *You may want to do this to test that the Email Graphs settings are correct. The Webcache will indicate if the test email has been sent successfully or not. If there is a problem it may take up to one minute for the Send Now operation to time out depending on the type of problem.*

15 SYSTEM DIAGNOSTICS

This chapter contains information about troubleshooting the configuration and network connectivity of the Webcache 1000/3000. It covers the following topics:

- System Diagnostics
- Pinging Other Devices
- Tracing IP Addresses
- System Log

System Diagnostics

You can use the various system diagnostic capabilities of the Webcache to help you identify any problems that may occur.

- **Ping** — Ping other devices on the network.
- **Trace Route** — Trace the network hops to a device on your network.
- **System Log** — View information about the Webcache.

Pinging Other Devices

The PING feature allows you to send out PING requests to test whether devices on an IP network are accessible and functioning correctly. This feature is useful to diagnose connectivity problems such as a failed network device between the Webcache and the web server being accessed, or to help diagnose DNS setup problems. For example, if the Webcache cannot access www.mycompany.com, enter **`www.mycompany.com`** in the *IP Address/DNS Name* field and click *Ping*. If the IP address for www.mycompany.com appears the DNS server is contactable and working correctly. The problem is therefore a connectivity issue between the Webcache and the origin web server.

Performing a Ping

To ping a device using the Web interface:

1. Log in to the Web interface.
2. Click *Device* on the Toolbar.
3. Select *Protocol* > *Ping/TraceRoute* in the Navigation Tree. The Ping/Traceroute screen is displayed.
4. In the *IP Address/DNS Name* field, enter the IP address or Domain Name Server name of the device that you want to PING. Click *Ping*.
5. The Webcache sends PING requests indefinitely to the specified device until you click *Stop*. A message similar to the following is displayed:

   ```
   Starting ping, resolution of displayed time is 10
   milli-seconds
   ```

   If the device is accessible and functioning correctly, a message similar to the following is displayed:

   ```
   64 bytes from 192.168.1.254: icmp_seq=0 ttl=248 time=195.2 ms
   ```

   If the device is not accessible, or is not functioning correctly, a message similar to the following is displayed:

   ```
   No answer from 192.168.1.254
   ```

You can interrupt a PING request at any time by clicking Stop*.*

Some network environments block PING traffic on the network. The PING request may therefore fail even if the network device is operating normally.

Tracing IP Addresses

The Trace Route feature allows you to display the network hops from the Webcache to a device on an IP network. This feature is useful to diagnose connectivity problems such as a failed network device between the Webcache and the web server being accessed.

Performing a Trace Route

To perform a trace route to a device using the Web interface:

1. Log in to the Web interface.
2. Click *Device* on the Toolbar.
3. Select *Protocol* > *Ping/TraceRoute* in the Navigation Tree. The Ping/Traceroute screen is displayed.
4. In the *IP Address/DNS Name* field, enter the IP address or Domain Name Server name of the device that you want to trace. Click *TraceRoute*.
5. The Webcache sends a trace route request to the specified device and a message similar to the following is displayed:

```
traceroute to 192.168.1.254, 30 hops max, 38 byte packets
```

If the device is accessible and functioning correctly, a message similar to the following is displayed which displays the network hops. Each hop may take a few seconds to complete:

```
1.router1 (192.168.1.255) 1.292ms, 1.343ms, 1.810ms
2.router2 (192.168.1.256) 26.027ms, 27.156ms, 44.902ms
3.router3 (192.168.1.257) 24.323ms, 24.854ms, 30.096ms
4.router4 (192.168.1.258) 27.303ms, 33.639ms
```

If the device is not accessible, or is not functioning correctly, only the hops that worked are displayed.

Trace Route Symbols

A symbol may be displayed after a network hop which provides further information about that hop. For further information, see the "Trace Route Symbols" appendix on page 333.

You can interrupt a trace route request at any time by clicking Stop*.*

Some network environments block trace route traffic on the network. The TraceRoute request may therefore fail even if the network device is operating normally.

System Log

The System Log records all of the events that occur on the Webcache and displays the information in text format. You can configure how detailed the information is, how much of it is displayed and how it is accessed. The System Log is primarily intended to be used by your System Administrator and 3Com support personnel to troubleshoot the Webcache.

Configuring the System Log

To configure the System Log using the Web interface:

1 Log in to the Web interface.

2 Click *Device* on the Toolbar.

3 Select *Diagnostics* > *Setup System Log* in the Navigation Tree. The Setup System Log screen is displayed.

4 You can choose to save the contents of the System Log onto a single management station in your network that has syslog analysis tools. This is of particular benefit if you are working with 3Com support personnel. Enter the IP address of the syslog server in the *Enter Syslog Server IP Address* field to enable this feature.

You must configure your syslog server to receive facility "daemon" messages at severity "info" and higher.

5 If you want to record more detailed System Log information, check *Enable Verbose Logging* and select either *Low*, *Medium* or *High*.

By default, the save System Log information feature is disabled. You must enable this feature if you want to view the entire contents of the System Log on a syslog server. You can only view the last 256 lines of the log using the View System Log *command of the Web interface. However, enabling verbose system logging may affect the performance of the Webcache because of the extra information that it is recording. You* *should only enable it if you have been instructed to do so by 3Com support personnel.*

What is a Syslog Server?

Syslog is a standard protocol for reporting system events that occur on the Webcache and most other modern network devices. A syslog server allows you to capture these system events, store them and display them in a variety of formats.

The purpose of a syslog server is to listen for incoming syslog messages (system events) on a UDP port (usually 514) and then decode and process the messages for logging and notification purposes. Syslog servers are also known as "syslog daemon" or, on Unix, "syslogd und Unix". Unix systems always have a syslog server installed, but Microsoft Windows does not include one.

Obtaining a Syslog Server

The CD-ROM contains a freeware application called 3CDaemon that allows you to configure a Syslog and TFTP server on a Microsoft Windows server. You can use the 3CDaemon syslog server to capture syslog events from devices and machines on your network. Note that 3CDaemon is provided without warranty by 3Com.

WebTrends Firewall Suite has an integral Syslog server which you can also use to capture syslog events from devices and machines on your network. Download this from:

`http://www.netiq.com/webtrends/`
(correct at time of publishing)

Microsoft recommends free syslog servers for Windows:

`http://www.microsoft.com/ntserver/partners/findoffering/serversolutions/special.asp`
(correct at time of publishing)

You can purchase a syslog server program for Windows. For example you can purchase WinSyslog from:

`http://www.winsyslog.com/en/`
(correct at time of publishing)

Viewing the System Log

To view the contents of the System Log using the Web interface:

1. Log in to the Web interface.
2. Click *Device* on the Toolbar.
3. Select *Diagnostics* > *View System Log* in the Navigation Tree. The System Log screen is displayed. The last 256 lines of the System Log are displayed, with the most recent information shown at the bottom of the log. Click *Refresh* to update the information that is displayed.

The System Log is primarily intended to be used by your System Administrator and 3Com support personnel to troubleshoot the Webcache.

VII Managing The Webcache Software

16 CONFIGURATION MANAGEMENT

This chapter contains information about saving and restoring the configuration settings of the Webcache 1000/3000. It covers the following topics:

- Saving and Restoring Configurations
- Saving a Configuration
- Restoring a Configuration

Saving and Restoring Configurations

Saving and Restoring configurations is primarily intended to allow you to revert to a previous software version in the unlikely event that you are experiencing problems following a software upgrade of the Webcache. You should always save your system configuration prior to commencing a software upgrade. You can save a snapshot of the current configuration settings of the Webcache to another client machine or server on your network. This is useful if you need to install an older version of software on the Webcache, as all configuration settings are lost after a software installation. You can save the configuration settings at any time for the current Webcache software version. Also, if the Webcache fails and is replaced with a new unit, you can use a saved configuration to quickly configure the settings of the replacement Webcache.

The Save Configuration operation saves the Webcache's current system configuration as a file in another location on your network. The saved system configuration file includes a record of the Webcache software version that was running when the configuration was saved.

The Restore Configuration operation restores the system configuration from the file to the Webcache. It checks that the system configuration being restored was created on the same Webcache software version as the one that the Webcache is running.

Example

You perform a software upgrade and experience problems with the Webcache. You now want to return the Webcache to a previous working software version. You need to install the previous software version and then restore the configuration that you saved prior to commencing the upgrade.

To do this, you need to install the software image of the previous software version. This is available either on the CD supplied with the Webcache or on the 3Com FTP site.

You need to perform a software installation to return the Webcache to a previous working software version. All of the Webcache's configuration settings are lost after a software installation has been completed, except the IP and DNS configuration. You should now browse to the Webcache's Web interface and restore the system configuration file that you saved the last time the Webcache was running this older software version. You would perform the Restore Configuration command to go back to a fully configured Webcache running the previous software version.

If you had not previously saved a system configuration file for the older software version, you would still be able to install a previous software image, but you would have to re-enter all of the configuration settings.

CAUTION: *You cannot restore a system configuration which was created on a different software version to the version that the Webcache is currently running.*
Example*: You save a configuration when the Webcache is running software version 1.00. You later perform a software upgrade to version 1.01 and attempt to restore the 1.00 system configuration to the Webcache. The Web interface will not allow you to restore the configuration.*
Therefore you should save a configuration file for each different software version that you run on the Webcache. If you need to go back to an earlier software version via a software installation, you can use a matching configuration file to restore the settings.

Saving a Configuration

To save the current system configuration of the Webcache using the Web interface:

1 Log in to the Web interface.

2 Click *Device* on the Toolbar.

3 Select *System* > *Control* > *Save Configuration* in the Navigation Tree. The Save Configuration screen is displayed.

4 Click *Save*.

5 Your Web browser prompts you to enter a filename and to choose a location. When you have entered the required information, click *OK*. The save process may take a few seconds to complete.

6 Write down the filename and location of the system configuration file for future reference. You should repeat this for every configuration that you save.

7 The Save Configuration screen in the Web interface does not close automatically when the save process has been completed. Click *Cancel* to close the screen when the configuration has been saved.

You can exit the Save Configuration screen without saving a system configuration file by clicking Cancel *instead of* Save.

The Webcache will automatically prompt you to save the current system configuration of the Webcache before you perform a software upgrade or a software installation.

3Com recommends that you always save the current system configuration of the Webcache before you make any significant changes to the configuration of the Webcache.

Restoring a Configuration

To restore a saved system configuration file to the Webcache using the Web interface:

1. Log in to the Web interface.
2. Click *Device* on the Toolbar.
3. Select *System* > *Control* > *Restore Configuration* in the Navigation Tree. The Restore Configuration screen is displayed.
4. In the *Configuration Filename* field, enter the network path and filename of the saved system configuration file that you want to restore.

   You can click *Browse* to search for the location of a file.

CAUTION: *You cannot restore a system configuration file which was created on a different software version to the version that the Webcache is currently running.*

5. Click *Restore*. The restore process begins.
6. The Restore Configuration Successful screen appears. Click *OK* to reboot the Webcache and complete the restoration of the system configuration file. The Device View is displayed in the Web interface.

You can exit the Restore Configuration screen without restoring a system configuration file by clicking Cancel *instead of* Restore.

17 SOFTWARE UPGRADES

This chapter contains information about upgrading and installing the management software of the Webcache 1000/3000. It covers the following topics:

- Software Upgrades
- Software Downgrades
- Detecting a Software Upgrade
- Performing a Software Upgrade

Software Upgrades

You can upgrade the management software of the Webcache when a new version becomes available.

The Webcache can detect any new Webcache software that has been made publicly available. There may be even newer functional releases or bug fixes available for your Webcache. To receive the very latest releases you must purchase a support contract for your Webcache from your reseller.

You can configure the Webcache to automatically detect and download new software versions, and notify you of their availability (via email notification; for further information, see "Email Notification" on page 208). The next time that you log in to the Webcache, the Upgrade Software wizard opens and guides you through the software upgrade process.

Alternatively, you can manually perform a software upgrade, by downloading and locating the software upgrade file yourself.

The configuration of the Webcache is preserved after a software upgrade has been performed; you do not have to re-configure the settings.

3Com recommends that you configure the Webcache to automatically detect new software versions.

Software Upgrade SNMP Traps

An SNMP Trap is sent to your network management station when any of the following events occur:

- When the software upgrade server is not available and automatic software upgrade detection is enabled.
- A new software upgrade is detected.
- A software upgrade is successful.

  If the software upgrade is completed successfully, the trap indicates that the upgrade has been successful and tells you what software version the Webcache is now running.
- A software upgrade fails.

  If the software upgrade is completed unsuccessfully, the trap indicates that the upgrade has been unsuccessful and tells you why it failed.

For further information about SNMP Traps, see "SNMP Traps" on page 212.

Unsuccessful Software Upgrades

The Webcache software upgrade process is robust and guards against an upgrade failure. Should a software upgrade fail, the Webcache will automatically revert to using the software version that was installed before the upgrade was started. The upgrade process is resilient to power failure, network failure or system failure. Prior to offering an automatic software upgrade, the Webcache will download the new software version onto temporary storage on the Webcache, ensuring that the complete software image file is available before commencing the upgrade.

Software Downgrades

You can downgrade the Webcache software using the same method as *Manual Upgrade*. This is useful in the unlikely event that you are experiencing problems following a software upgrade of the Webcache. A software downgrade should only be performed as an emergency recovery procedure.

During a software downgrade all settings apart from IP and DNS information will be lost and you will have to restore the settings from a previously saved configuration file. Configuration files can only be used with the version of software that created them.

To perform a software upgrade or downgrade see "Performing a Manual Software Upgrade" on page 245.

3Com Network Supervisor cannot be used to perform software downgrades. It can only upgrade the software on the Webcache.

Detecting a Software Upgrade

You can configure the Webcache to automatically detect and download new software versions, and notify you of their availability. If you enable automatic detection, the Webcache checks for a new software version every 24 hours after it was last rebooted, at the same time each day.

You should leave the Upgrade Detection Settings screen at its factory default settings, unless you are instructed to change them by 3Com support personnel.

The Webcache can detect any new Webcache software that has been made publicly available. There may be even newer functional releases or bug fixes available for your Webcache. To receive the very latest releases you must purchase a support contract for your Webcache from your reseller.

You must ensure that FTP requests are not blocked by a Firewall on TCP ports 20 and 21. Upgrade detection will fail if your Firewall blocks FTP requests. A "Software Upgrade Download Failed" SNMP trap and email notification will be issued (if configured) to inform you of the failure; for further information, see "Automatic System Events" on page 214.

To configure the detection of software upgrades using the Web interface:

1 Click *Device* on the Toolbar.

2 Select *System* > *Control* > *Upgrade Detection* in the Navigation Tree.

3 If you want the Webcache to automatically detect and download new software versions, and notify you of their availability, check *Enable Automatic Software Upgrade Detection*.

The Webcache notifies you of the availability of new software versions via an SNMP trap and email notification; for further information, see "Automatic System Events" on page 214.

If you want to disable automatic detection, and instead perform software upgrades from a file on a local server, ensure that *Enable Automatic Software Upgrade Detection* is unchecked.

4 The default FTP site settings are displayed:

- FTP Server Address: `ftp.3com.com`
- FTP Server Directory: `pub/webcache`
- Username: `anonymous`
- Password: `Webcache@hostname.domainname`

When a password has been set, `**********` *is displayed in the* Password *field, regardless of how many characters the password actually is. You can change the password by clicking* Change Password *and entering the new password. The password must be between 1 and 32 characters in length. The default password is Webcache@hostname.domainname. If you set the DNS domain name to be* **`mycompany.com`** *and the DNS host name to be* **`mycache`**, *the default FTP password would be* `Webcache@mycache.mycompany.com`. *If the DNS host name and domain are not set, the default password is* `Webcache`.

If necessary, you can change the FTP site that the Webcache automatically downloads software upgrades from by entering the new FTP address, directory, user name and password in the appropriate fields. You may want to change the FTP site in order to download a software upgrade from a location other than the default 3Com FTP site.

You can restore the FTP site to the factory defaults by clicking Restore Defaults*.*

Performing a Software Upgrade

You can perform a software upgrade in one of the following ways:

- Automatically Detected Software Upgrade
- Manual Upgrade/Downgrade

It is not possible to downgrade the software of the Webcache automatically. To downgrade the software you must use the Manual Upgrade/Downgrade procedure.

Additionally, it is possible to upgrade the software using the Agent Upgrade capabilities of the 3Com Network Supervisor Advanced Package. See the documentation supplied with the package for instructions.

3Com Network Supervisor cannot be used to perform software downgrades. It can only upgrade the software on the Webcache.

Performing an Automatically Detected Software Upgrade

This occurs if *Enable Automatic Software Upgrade Detection* is checked in the Upgrade Detection screen and a new software version has been detected. The Software Upgrade wizard will automatically start the next time that you log in to the Webcache.

To perform an automatically detected software upgrade:

1 Log in to the Web interface.

2 If a new software version has been detected, the first screen of the Upgrade Software wizard is displayed. Click *Next*.

If a new software version has not been yet detected, you can force the Webcache to check now by selecting System > Control > Upgrade Detection > *and clicking* Detect Now*. The Webcache will begin and upgrade detection in the background. The Webcache will send you an email and generate an SNMP trap if an upgrade is detected providing you have these features enabled.*

3 The Save Configuration screen is displayed.

Click *Save Configuration* if you want to save the system configuration.

The Save Configuration operation saves the Webcache's current system configuration as a file in another location on your network.

3Com recommends that you save your system configuration settings before you perform a software upgrade. Saving the configuration settings ensures that you can recover your entire system configuration if you need to re-install an older software version. For further information, see "Performing a Manual Software Upgrade" on page 245.

Click *Next*.

4 The Software Upgrade Available screen is displayed. Click *Next*.

5 You have four options to choose from:

- **View Upgrade Version Release Notes**

  Select this to view detailed information about the new software version.

- **Upgrade Now**

  Select this to upgrade the Webcache to the new software version now.

- **Upgrade Later**

  Select this to upgrade the Webcache to the new software version at a later time. You will be reminded about the upgrade when you next log in to the Webcache, as the Upgrade Software wizard will automatically open.

- **Discard Upgrade**

  Select this if you do not want to upgrade the Webcache to the new software version. You will not be reminded about the upgrade to this particular version. The Upgrade Software wizard will not offer you the chance to upgrade to this version if you discard the software version. If you select *Discard Upgrade* and later wish to install the software version, you must perform a manual software upgrade.

Select an option and click *Next*.

6 If you selected *View Upgrade Version Release Notes*, the release notes are displayed in a new instance of the browser window. Click *Close* to return to the Software Upgrade Available screen.

If you selected *Upgrade Now*, the Finish screen is displayed. Go to step 7.

If you selected *Upgrade Later*, the Upgrade Later screen is displayed. Click *Finish* to exit the Upgrade Software wizard.

If you selected *Discard Upgrade*, the Discard Upgrade screen is displayed. Click *Finish* to exit the Upgrade Software wizard.

7 Carefully read the summary information, which displays the name of the software image file, its software version and the date on which it was created. Click *Next*.

8 The Software License Terms screen is displayed. You must click *Read License* to read the 3Com End User Software License agreement. You cannot accept or decline the agreement until you have read it.

9 The 3Com End User Software License is displayed. Carefully read it and click *Print* if you want to print it out. Click *Done* to continue.

10 The Software License Terms screen is displayed again. If you accept the terms of the License, select *Accept*. Go to step 11.

If you do not accept the terms of the License, select *Decline*. The software upgrade will be ended.

11 The Finish screen is displayed again. Click Next to start the software upgrade.

12 The software upgrade may take several minutes to complete. The Software Upgrade Successful screen is displayed when the software upgrade has been successful.

13 Click *Reboot* to exit the Upgrade Software wizard and reboot the Webcache. This will complete the software upgrade. The Device View is displayed in the Web interface.

Performing a Manual Software Upgrade

You can manually perform a software upgrade or downgrade by downloading and locating the software image yourself.

If you are downgrading the software, all settings apart from IP and DNS information will be lost and you will have to restore the settings from a previously saved configuration file. Configuration files can only be used with the version of software that created them.

To perform a manual software upgrade or downgrade:

1 Log in to the Web interface.

2 Click *Device* on the Toolbar.

3 Select *System* > *Control* > *Upgrade Software* in the Navigation Tree. The first screen of the Upgrade Software wizard is displayed. Click *Next*.

4 You will be informed if an automatic upgrade is available. Click *Manual Upgrade/Downgrade* to continue.

5 The Manual Upgrade/Downgrade screen is displayed. In the *Webcache Software Image* field, enter the network path and filename of the software image file which you want to use.

You can click *Browse* to search for the location of a software image file.

Click *Next*. The software image file is transferred to the Webcache. This may take up to one minute, depending on how fast the link is between the Webcache and the Web browser.

6 The Webcache will verify if the file that you have selected is valid. If it is not valid, the software upgrade fails.

If the file is valid, the final screen of the wizard is displayed. Carefully read the summary information, which displays the name, software version and creation date of the current software image file and the new software image file that you are upgrading to. Ensure that the software image is the one that you want to upgrade to. Click *Next*.

7 The Software License Terms screen is displayed. You must click *View License* to view the 3Com End User Software License agreement. You cannot accept or decline the agreement until you have viewed it.

8 The 3Com End User Software License is displayed. Carefully read it and click *Print* if you want to print it out. Click *Done* to continue.

9 The Software License Terms screen is displayed again. If you accept the terms of the License, select *Accept*. Go to step 10.

If you do not accept the terms of the License, select *Decline*. The software upgrade will be ended.

10 The Save Configuration screen is displayed.

Click *Save Configuration* if you want to save the system configuration.

3Com recommends that you save your system settings before you perform a software upgrade. Saving the configuration settings ensures that you can recover your entire system configuration if you need to re-install an older software version.

11 The Finish screen is displayed again. Click Next to start the software upgrade.

12 The software upgrade may take several minutes to complete. The Software Upgrade Successful screen is displayed when the software upgrade has been successful.

13 Click *Reboot* to exit the Upgrade Software wizard and reboot the Webcache. This will complete the software upgrade. The Device View is displayed in the Web interface.

If you have downgraded the software the Getting Started Wizard will start automatically and you will now have to restore the system configuration. See "Restoring a Configuration" on page 238.

VIII COMMAND LINE INTERFACE

18 COMMAND LINE INTERFACE

The Webcache 1000/3000 has a Command Line Interface that allows you to manage certain features from a terminal. You may want to use the Command Line Interface to setup the Webcache for management through the console port or over your network via Telnet.

This chapter describes how to access and use the Command Line Interface. It covers the following topics:

- A Quick Guide to the Commands
- Getting Started
- Displaying and Changing WAN and LAN Port Information
- Displaying and Changing Protocol Information
- Displaying and Changing Security Information
- Displaying and Changing Webcache Information and Functions

A Quick Guide to the Commands

Table 10 describes the commands that are available in the Command Line Interface.

Table 10 Command Line Interface commands

Command	What does it do?
`gettingStarted`	Specifies basic setup information for the Webcache.
`logout`	Exits the current user from the Command Line Interface.
`physicalInterface portMode`	Sets the mode of operation of the WAN and LAN ports.
`physicalInterface summary`	Displays summary information for the WAN and LAN ports.
`protocol basicConfig`	Specifies IP and Domain Name System (DNS) configuration.
`protocol dnsConfig`	Specifies Domain Name System (DNS) configuration.
`protocol initializeConfig`	Resets IP information to factory default settings.
`protocol ipConfig`	Specifies IP management configuration.
`protocol ping`	Pings other devices on your network.
`protocol summary`	Displays IP summary information.
`protocol traceRoute`	Traces the network hops to devices on your network.
`security management`	Secures the management interfaces of the Webcache.
`security password`	Specifies the password for the current user.
`security pwdRecover`	Enables and disables password recovery.
`system control initialize`	Initializes the Webcache to factory default settings.
`system control reboot`	Reboots the Webcache.
`system management community`	Sets the SNMP community string.
`system management contact`	Specifies a contact name for the Webcache.
`system management location`	Specifies location details for the Webcache.
`system management name`	Specifies a name for the Webcache.
`system summary`	Displays summary information for the Webcache.

Getting Started

The Getting Started command allows you to quickly configure or view basic setup information for the Webcache.

To configure basic setup information:

1 At the Top-level menu, enter:

```
gettingStarted
```

The following prompt is displayed:

```
Enter system name:
```

2 Enter a system name for the Webcache. The name can be up to 80 characters long.

The following prompt is displayed:

```
Enter system contact:
```

3 Enter a system contact for the Webcache. The name can be up to 80 characters long.

The following prompt is displayed:

```
Enter system location:
```

4 Enter a physical location for the Webcache. The location name can be up to 80 characters long.

The following prompt is displayed:

```
Enter IP address [192.168.1.253]:
```

5 Enter a valid IP address.

The following prompt is displayed:

```
Enter subnet mask [255.255.255.0]
```

6 Enter a valid subnet mask.

The following prompt is displayed:

```
Enter gateway IP address [0.0.0.0]:
```

7 Enter a valid gateway IP address.

The following prompt is displayed:

```
Enter Host name
```

8 Enter a valid host name.

The following prompt is displayed:

```
Enter Domain name
```

9. Enter a valid domain name.

   The following prompt is displayed:

   ```
   Enter First Search Domain
   ```

10. Enter a valid search domain name.

    The following prompt is displayed:

    ```
    Enter Second Search Domain
    ```

11. Enter a valid search domain name.

    The following prompt is displayed:

    ```
    Enter First DNS Server [0.0.0.0]:
    ```

12. Enter a valid Domain Network System (DNS) Server IP address.

    The following prompt is displayed:

    ```
    Enter Second DNS Server [0.0.0.0]:
    ```

13. Enter a valid Domain Network System (DNS) Server IP address.

    The following prompt is displayed:

    ```
    Enter Third DNS Server [0.0.0.0]:
    ```

14. Enter a valid Domain Network System (DNS) Server IP address.

    The following prompt and a list of timezones is displayed:

    ```
    Enter the index of timezone [12]:
    ```

15. Enter the index number of the timezone that you want the Webcache to operate in.

    Example

    Enter **`8`** if you want to select `(T - 06:00) Central Time (US).`

    The following prompt is displayed:

    ```
    Enter time option (NTP,manual) [manual]:
    ```

16. Enter either **`NTP`** (Network Time Protocol) or **`manual`**.

    - If you entered **`NTP`**, the following prompt is displayed:

      ```
      Enter Primary NTP Server [0.0.0.0]:
      ```

      Enter a valid NTP server IP address.

      The following prompt is displayed:

      ```
      Enter Secondary NTP Server [0.0.0.0]:
      ```

      Enter a valid NTP server IP address.

If you enter primary and secondary NTP server addresses and both are available, the Webcache automatically uses the most reliable one.

- If you entered **`manual`**, the following prompt is displayed:

  ```
  Enter date [dd/mm/yy]:
  ```

  Enter a valid date.

  The following prompt is displayed:

  ```
  Enter time: [hour:min:sec]
  ```

  Enter a valid time.

The date and time are set as soon as you press Return.

17 The following prompt is displayed:

```
Current System Time is November 19 07:27:33 2001
Do you want to set the System Time? (yes/no) [no]:
```

Enter **`yes`** if you want to set the system time of the Webcache.

The Webcache is rebooted at the end of the Getting Started command if you chose to set the system time; for further information, see "Rebooting the Webcache" on page 268.

Enter **`no`** if you do not want to set the current system time of the Webcache.

The following prompt is displayed:

```
Old password:
```

18 Enter the current password for the *admin* user.

The following prompt is displayed:

```
Enter new password:
```

If you press Return without entering a password, the password is set to <no password>.

19 Enter the new password for the *admin* user.

The following prompt is displayed:

```
Retype password:
```

20 Re-enter the new password. A message is displayed informing you that the password has been successfully changed.

The following prompt is displayed:

```
Enter the mode of operation (proxy, transparent, inline)
[transparent]:
```

21 Enter either **`proxy`**, **`transparent`** or **`inline`**.

For further information, see "Deploying the Webcache in Your Network" on page 70.

If you entered **`proxy`**, the following prompt is displayed:

```
Enter the port number [8080]:
```

22 Enter the port number on which the Webcache will listen for traffic.

The Finish prompt is displayed, which summarises the selections that you have made.

Exiting the Command Line Interface

You can exit the Command Line Interface at any time using the `logout` command on the Top-level menu.

To exit the Command Line Interface, at the Top-level menu, enter:

```
logout
```

If a period of inactivity lasts longer than 30 minutes, the Webcache will automatically log you out.

After the exit, the first key that you press returns you to the login sequence.

Displaying and Changing WAN and LAN Port Information

You can display and change the WAN and LAN port information for the Webcache using the commands on the Physical Interface menu. These commands allow you to:

- Configure the WAN and LAN Ports
- Display WAN and LAN Port Information

Configuring the WAN and LAN Ports

You can use the `portMode` command on the PhysicalInterface menu to configure the WAN and LAN port settings of the Webcache. This command allows you to configure the autonegotiation setting, link speed and duplex state for each port.

To configure the WAN and LAN port settings:

1 At the Top-level menu, enter:

```
physicalInterface portMode
```

The following prompt is displayed:

```
Warning: Changing the port configuration may cause loss of
any existing network connections to the Webcache.

Do you wish to continue (yes/no) [no]:
```

2 Enter **`yes`** if you wish to proceed, or **`no`** if you want to stop the configuration.

If you enter **`yes`**, the following prompt is displayed:

```
Select Ethernet port (LAN/WAN) [LAN]:
```

3 Enter either **`LAN`** if you want to configure the LAN port, or **`WAN`** if you want to configure the WAN port.

The following prompt is displayed:

```
Set autonegotiation (enable/disable) [enable]:
```

4 Enter either **`enable`** if you want to enable autonegotiation on the port, or **`disable`** if you want to disable it.

If you enter **`disable`**, the following prompt is displayed:

```
Set link (10half, 10full, 100half, 100full) [100full]:
```

Enter the Link Speed (10 or 100) and Duplex State (half or full) setting for the port.

Displaying WAN and LAN Port Summary Information

You can use the `summary` command on the PhysicalInterface menu to view summary information for the WAN and LAN ports.

To display the WAN and LAN information:

1 At the Top-level menu, enter:

```
physicalInterface summary
```

The summary information for the WAN and LAN ports is displayed.

An example of the summary information is shown below:

```
Port     Mode              Current Speed     Current Duplex


LAN      Autonegotiate     100M              Full duplex
WAN      Autonegotiate     No link           No link
```

Displaying and Changing Protocol Information

You can display and change the Protocol information for the Webcache using the commands on the IP menu. These commands allow you to:

- Configure the IP and Domain Name System settings
- Configure the Domain Name System settings
- Reset IP information to factory default settings
- Configure the IP management settings
- Send out a PING request
- Display IP summary information
- Specify an IP address to be traced

Specifying Basic Network Configuration

You can use the `basicConfig` command on the Protocol menu to configure the IP and Domain Name System settings of the Webcache. This command allows you to configure the IP address, subnet mask, default gateway IP address, host name, domain name, search domains and Domain Network System (DNS) server addresses.

To configure the IP and Domain Name System settings:

1 At the Top-level menu, enter:

```
protocol basicConfig
```

The following prompt is displayed:

```
Enter IP address [196.168.100.1]:
```

2 Enter a valid IP address.

The following prompt is displayed:

```
Enter Subnet mask [255.255.255.0]
```

3 Enter a valid subnet mask.

The following prompt is displayed:

```
Enter Gateway IP address [196.168.100.2]:
```

4. Enter a valid gateway IP address.

   The following prompt is displayed:

   ```
   Enter Host name:
   ```

5. Enter a valid host name.

   The following prompt is displayed:

   ```
   Enter Domain name
   ```

6. Enter a valid domain name.

   The following prompt is displayed:

   ```
   Enter First Search Domain
   ```

7. Enter a valid search domain name.

   The following prompt is displayed:

   ```
   Enter Second Search Domain
   ```

8. Enter a valid search domain name.

   The following prompt is displayed:

   ```
   Enter First DNS Server [0.0.0.0]:
   ```

9. Enter a valid Domain Network System (DNS) Server IP address.

   The following prompt is displayed:

   ```
   Enter Second DNS Server [0.0.0.0]:
   ```

10. Enter a valid Domain Network System (DNS) Server IP address.

    The following prompt is displayed:

    ```
    Enter Third DNS Server [0.0.0.0]:
    ```

    Enter a valid Domain Network System (DNS) Server IP address.

Specifying Domain Name System Configuration

You can use the `dnsConfig` command on the Protocol menu to configure the Domain Name System settings of the Webcache. This command allows you to configure the host name, domain name, search domains and Domain Network System (DNS) server addresses.

To configure the Domain Name System settings:

1. At the Top-level menu, enter:

   ```
   protocol dnsConfig
   ```

   The following prompt is displayed:

   ```
   Enter Host name:
   ```

2 Enter a valid host name.

The following prompt is displayed:

```
Enter Domain name
```

3 Enter a valid domain name.

The following prompt is displayed:

```
Enter First Search Domain
```

4 Enter a valid domain name.

The following prompt is displayed:

```
Enter Second Search Domain
```

5 Enter a valid domain name.

The following prompt is displayed:

```
Enter First DNS Server [0.0.0.0]:
```

6 Enter a valid Domain Network System (DNS) Server IP address.

The following prompt is displayed:

```
Enter Second DNS Server [0.0.0.0]:
```

7 Enter a valid Domain Network System (DNS) Server IP address.

The following prompt is displayed:

```
Enter Third DNS Server [0.0.0.0]:
```

Enter a valid Domain Network System (DNS) Server IP address.

Resetting IP and DNS Information to Factory Default Settings

You can reset all IP and DNS information on the Webcache to factory default settings using the `initializeConfig` command on the Protocol menu.

To reset IP and DNS information to factory defaults:

1 At the Top-level menu, enter:

```
protocol initializeConfig
```

The following prompt is displayed:

```
This will reset the IP and DNS configurations to factory
default settings:
Default IP address              192.168.1.253
Default Subnet mask             255.255.255.0
Default gateway                 0.0.0.0
Default DNS hostname            none
Default DNS domain name:
Default First DNS server        0.0.0.0
Default Second DNS server       0.0.0.0
Default Third DNS server        0.0.0.0
WARNING: You will lose any existing network connections to
the web cache.


Do you wish to continue (yes,no)[no]:
```

2 Enter **`yes`** to reset the IP and DNS information for the Webcache.

Specifying IP Configuration

You can use the `ipConfig` command on the Protocol menu to configure the IP stack of the Webcache. This will allow you to manage the Webcache over IP via the CLI or Web interface. This command allows you to configure the IP address, subnet mask and the default gateway IP address.

To configure IP management:

1 At the Top-level menu, enter:

`protocol ipConfig`

The following prompt is displayed:

```
Enter IP address [196.168.100.1]:
```

2 Enter a valid IP address.

The following prompt is displayed:

```
Enter Subnet mask [255.255.255.0]
```

3 Enter a valid subnet mask.

The following prompt is displayed:

```
Enter Gateway IP address [196.168.100.2]:
```

Enter a valid gateway IP address.

Pinging Other Devices

The PING feature allows you to send out PING requests to test whether devices on an IP network are accessible and functioning correctly. This feature is useful to diagnose connectivity problems such as a failed network device between the Webcache and the web server being accessed, or to help diagnose DNS setup problems. For example, if the Webcache cannot access www.mycompany.com, enter **`www.mycompany.com`** in the *IP Address/DNS Name* field and click *Ping*. If the IP address for www.mycompany.com appears the DNS server is contactable and working correctly. The problem is therefore a connectivity issue between the Webcache and the DNS server.

You can PING other devices on your network using the `ping` command on the Protocol menu.

To PING a device:

1 At the Top-level menu, enter:

```
protocol ping
```

The following prompt is displayed:

```
Enter destination IP address/DNS Name:
```

2 Enter the IP address or Domain Name Server name of the device that you want to PING.

The Webcache sends PING requests indefinitely to the specified device until you press **`Esc`**. A message similar to the following is displayed:

```
Starting ping, resolution of displayed time is 10
milli-seconds
```

If the device is accessible and functioning correctly, a message similar to the following is displayed:

```
64 bytes from 192.156.136.22: icmp_seq=0 ttl=248 time=195.2
ms
```

If the device is not accessible, or is not functioning correctly, a message similar to the following is displayed:

```
No answer from 192.156.136.22
```

You can interrupt a PING request at any time by pressing Esc.

Some network environments block PING traffic on the network. The PING request may therefore fail even if the network device is operating normally.

Displaying IP Summary Information

You can display IP summary information for the Webcache using the `summary` command on the Protocol menu.

To display the IP information, at the Top-level menu, enter:

```
protocol summary
```

The IP information for the Webcache is displayed.

An example of the IP information is shown below:

```
IP address: 196.168.100.1
Subnet mask: 255.255.255.0
Default gateway: 196.168.100.2

Host name: webcache
Domain name: mycompany.com
First search domain:
Second search domain:
First DNS Server IP address: 196.168.100.3
Second DNS Server IP address: 0.0.0.0
Third DNS Server IP address: 0.0.0.0
```

Tracing IP Addresses

The Trace Route feature allows you to display the network hops from the Webcache to a device on an IP network. This feature is useful for testing that the Webcache is installed and set up correctly, and that your network connections are working.

You can perform a trace route to other devices on your network using the `traceRoute` command on the Protocol menu.

1 At the Top-level menu, enter:

```
protocol traceRoute
```

The following prompt is displayed:

```
Enter destination IP address/DNS name:
```

2 Enter the IP address or Domain Name Server name of the device that you want to trace.

The Webcache sends a trace route request to the specified device and a message similar to the following is displayed:

```
traceroute to 191.128.40.121, 30 hops max, 38 byte packets
```

If the device is accessible and functioning correctly, a message similar to the following is displayed which displays the network hops:

```
1.routerc1 (140.204.20.20) 1.292ms, 1.343ms, 1.810ms
```

```
2.BW-RTR-4.EUR.3Com.COM (161.71.21.45) 26.027ms, 27.156ms,
44.902ms
3.BW-RTR-1.EUR.3Com.COM (140.204.220.15) 24.323ms, 24.854ms,
30.096ms
4.janeway (161.71.123.36) 27.303ms, 33.639ms
```

If the device is not accessible, or is not functioning correctly, a message similar to the following is displayed:

```
No answer from 191.128.40.121
```

Trace Route Symbols

A symbol may be displayed after a network hop which provides further information about that hop. For further information, see the "Trace Route Symbols" appendix on page 333.

You can interrupt a trace route request at any time by pressing Esc.

Some network environments block trace route traffic on the network. The TraceRoute request may therefore fail even if the network device is operating normally.

Displaying and Changing Security Information

You can display and change the Security-related information for the Webcache using the commands on the Security menu. These commands allow you to:

- Secure the management interface
- Specify the password for the current user
- Enable and disable password recovery

Securing the Management Interface

You can restrict both the visibility of the Webcache's Web interface and the accessibility of the Web interface, CLI via Telnet, and SNMP interface.

To restrict access, login as the admin user and follow the steps below:

1 At the Top-level menu enter:

```
security management
```

The following message is displayed:

```
By default, the web interface is available on port 80 and
port 8081.
You can disable the web interface on port 80.

Web interface is available on TCP Port 80 (yes/no) [yes]:
```

2 Enter `yes` to keep the Web interface available on port 80 (the default HTTP port), or `no` to restrict the Web interface to port 8081.

The following message is displayed:

```
You can also specify individual IP addresses or IP address
ranges that are allowed to manage the Webcache.
Enter 'none' if there should be no restriction.


Web/Telnet management restricted to IP addresses [none]:
```

3 Enter a comma-separated list of IP addresses, an IP range or a combination of both. For example if you enter:

```
192.168.1.5, 192.168.1.6, 192.168.1.7
```

you will have allowed only these three addresses access to the Web interface of the web. You could have entered:

```
192.168.1.5-192.168.1.7
```

for the same outcome. You can combine address ranges and comma separated lists as below:

```
192.168.1.5-192.168.1.7, 192.168.1.23
```

to allow these four addresses access to the Web interface.

To allow unrestricted access enter:

```
none
```

CAUTION: *If you do not include the IP address of your own computer in the list or range, you will no longer be able to administer the Webcache from your computer. If this occurs, you need to use the console port to access the Command Line Interface and use the* Security > Management *commands to change the restriction to the correct addresses.*

Restricting access does not change the caching operation of the Webcache. Only access to the Web interface, CLI via Telnet and SNMP is affected.

Changing the Admin Password

You can change the password for the *admin* user using the `password` command on the Security menu.

To change the password, you need to login as the *admin* user and then follow the steps below:

1 At the Top-level menu, enter:

```
security password
```

The following prompt is displayed, allowing you to enter a new password:

```
Enter the password:
```

2 Enter the new password for the *admin* user.

The following prompt is displayed, allowing you to re-enter the new password as confirmation:

```
Re-enter the password:
```

If you press Return without entering a password, the password is set to <no password>.

3 A message is displayed informing you that the password has been successfully changed.

Enabling and Disabling Password Recovery

You can enable or disable password recovery for the Webcache using the `pwdRecover` command on the Security menu. For further information about password recovery, see the "Securing Access to the Webcache Management Interfaces"chapter on page 103.

CAUTION: *3Com recommends that you leave Password Recovery enabled. If you disable it and subsequently forget the password for the* admin *user name, you will have to return the Webcache to 3Com.*

To enable or disable password recovery:

1 At the Top-level menu, enter:

```
security pwdRecover
```

The following example prompt is displayed:

```
The Password Recovery feature is enabled.
Enter new value (enable,disable) [enable]:
```

Displaying and Changing Webcache Information and Functions

You can display and change information about the Webcache using the commands on the System menu. These commands allow you to:

- Initialize the Webcache to factory default settings
- Reboot the Webcache
- Specify a community string for the Webcache
- Specify a contact name for the Webcache
- Specify location details for the Webcache
- Specify a name for the Webcache
- Display summary information for the Webcache

Initializing the Webcache

You can initialize the Webcache using the `initialize` command on the Control menu.

To initialize the Webcache:

1 At the Top-level menu, enter:

```
system control initialize
```

The following prompt is displayed:

```
WARNING: This command initializes the system to factory
defaults (excluding IP details) and causes a reset.
Do you wish to continue (yes,no) [no]:
```

2 Enter **`yes`** if you wish to proceed, or **`no`** if you want to stop the initialization.

What Happens During an Initialization?

Initializing the Webcache returns it to its default (factory) settings, except for the current IP and DNS configuration. All cached Web objects and the DNS cache are cleared. For further information see "Choosing a Suitable Site" on page 65.

You may want to initialize the Webcache if it has previously been used in a different part of your network, and its settings are incorrect for the new environment.

***CAUTION:** Use great care when initializing the Webcache. It removes all configuration information, including password and security information.*

The Webcache is rebooted, which takes approximately 60-90 seconds. While the Webcache is being rebooted, you cannot communicate with it.

Rebooting the Webcache

You can reboot the Webcache using the `reboot` command on the Control menu.

To reboot the Webcache:

1 At the Top-level menu, enter:

```
system control reboot
```

The following prompt is displayed:

```
Are you sure you want to reboot the system (yes,no) [no]:
```

2 Enter **`yes`** if you wish to proceed, or **`no`** if you want to stop the reboot.

What Happens During a Reboot?

Rebooting the Webcache simulates a power-off/on cycle. The Telnet session to the Webcache will be terminated.

The Webcache takes about approximately 60-90 seconds to reboot. While the Webcache is being rebooted, you cannot communicate with it.

Setting the Webcache SNMP Community String

You can change the Public and Private SNMP community strings for the Webcache using the `community` command on the Management menu. For further information, see "Configuring SNMP Community Strings" on page 212.

3Com recommends that you change the default community strings to prevent unwanted users from gaining access to the Webcache.

To change the community strings:

1 At the Top-level menu, enter:

```
system management community
```

The following prompt is displayed:

```
Enter new Private (Set/Write) community [private]:
```

2 Enter the community string for Private (Set/Write) requests to the Webcache.

The following prompt is displayed:

```
Enter new Public (Get/Read) community [public]:
```

3 Enter the community string for Public (Get/Read) requests to the Webcache.

You can enter a maximum of 30 characters for each community string.

Specifying a Contact Name

You can specify contact name details for the Webcache using the `contact` command on the Management menu.

To specify the contact name details:

1 At the Top-level menu, enter:

```
system management contact
```

The following prompt is displayed:

```
Enter system contact [<contact name>]:
```

2 Enter a system contact for the Webcache. The name can be up to 80 characters long.

Specifying Location Details

You can specify physical location details for the Webcache using the `location` command on the Management menu.

To specify the location details:

1 At the Top-level menu, enter:

```
system management location
```

The following prompt is displayed:

```
Enter system location [<location>]:
```

2 Enter a physical location for the Webcache. The location name can be up to 80 characters long.

Specifying a Webcache Name

You can specify a Webcache name using the `name` command on the Management menu.

To specify the name:

1 At the Top-level menu, enter:

```
system management name
```

The following prompt is displayed:

```
Enter system name [<system name>]:
```

2 Enter a system name for the Webcache. The name can be up to 80 characters long.

Displaying Summary Information

You can display the summary information for the Webcache using the `summary` command on the System menu. This information may be useful for your technical support representative if you have a problem.

To display the information:

1 At the Top-level menu, enter:

```
system summary
```

The administration details are displayed as shown in the example below:

```
System Name              : Development
Location                 : Wiring Closet, Floor 1
Contact                  : System Administrator

Up Time                  : 2 days, 3 hours, 10 minutes
Software Version         : 1_00
Hardware Version         : 1.0
Boot Version             : 1.10
MAC Address              : 08:00:00:00:11:11
Product Number           : 3C16115
Serial Number            : 7ZNR001111
```

The following read-only fields are displayed:

- **System Name**

  Displays the descriptive name, or system name, for the Webcache. For information about assigning a new name, see "Specifying a Webcache Name"on page 269.

- **Location**

  Displays the physical location of the Webcache. For information about assigning a new location, see "Specifying Location Details" on page 269.

- **Contact**

  Displays the details of a person to contact about the Webcache. For information about assigning new contact details, see "Specifying a Contact Name" on page 269.

- **Up Time**

  Displays the time that has elapsed since the Webcache was last reset, initialized or powered-up.

- **Software Version**

  Displays the version number of the management software currently installed on the Webcache.

- **Hardware Version**

  Displays the version number of the Webcache hardware.

- **Boot Version**

  Displays the boot version of the Webcache.

- **MAC Address**

  Displays the MAC (Ethernet) address of the Webcache.

- **Product Number**

  Displays the product number of the Webcache.

- **Serial Number**

  Displays the serial number of the Webcache.

IX Problem Solving

19 PROBLEM SOLVING

This chapter contains a list of known problems and suggested solutions. It covers the following topics:

Accessing the Webcache via the Console Line

The terminal or terminal emulator cannot access the Webcache.
Check that:

- Your terminal or terminal emulator is correctly configured to operate as a generic (TTY) terminal, or a VT100 terminal.
- You have performed the Command Line Interface wake-up procedure by pressing [Return] a few times.
- The settings on your terminal or terminal emulator are correct and match those set for the Webcache console port:
  - 8 data bits
  - no parity
  - 1 stop bit
  - 9600 baud (default)

  The Webcache only works with line speeds from 1200 to 19,200 baud. The default line speed of the Webcache is 9600 baud.

If the login sequence still does not display, reset the Webcache. For further information, see "Rebooting the Webcache" on page 268. If this does not work, initialize the Webcache. For further information, see "Initializing the Webcache" on page 267.

Accessing the Webcache via Telnet

You cannot access the Webcache using Telnet.
Check that:

- The network cables are secure.
- The network cable used to access the Webcache is connected to the LAN port.
- The Port Activity LED on the Webcache LAN port is Green or Green Flashing.
- The duplex settings are as expected by the rest of your network.
- You can ping the Webcache.
- The terminal or terminal emulator is set to VT52 or VT100 mode.
- Press Return a few times to wake up the CLI.

The terminal or terminal emulator can no longer access the Webcache over the network.

Check that the connections and network cabling for the LAN port are in place.

If there is still a problem, try accessing the Webcache through a different port. If you can now access the Webcache, a problem may have occurred with the original port. Contact your supplier for further advice.

Solving Problems Indicated by LEDs

If the LEDs on the Webcache indicate a problem, refer to Table 11, which contains a list of problems and suggested solutions.

Table 11 Problems Indicated by LEDs

Problem	Suggested Solution
The Power/Self test LED does not light	Check that the power cable is firmly connected to the Webcache and to the supply outlet. If the connection is secure and there is still no power, you may have a faulty power cord.
On powering-up, the Power/Self test LED lights yellow	The Webcache has failed during its power-up sequence because of an internal problem. Contact your supplier for advice.
The Power/Self test LED is flashing yellow	Log on to the Web interface using the factory default IP address (192.168.1.253). Reconfigure the IP information for the Webcache using the *Protocol* > *IP Setup* command. Restore all other Webcache settings.
A link is connected but the Status LED for the port does not light	Check that: ■ All connections are secure. ■ The devices at both ends of the link are powered-up. ■ The quality of cable is satisfactory.

Solving Web Interface Problems

The Web interface is not displayed in the Web browser.
The Web interface can be accessed by any browser that conforms to the following W3C standards: HTML 4.0, CSS 1.0, DOM, ECMA 262. To display the Web interface correctly, use one of the following Web browsers:

- Microsoft Internet Explorer v4.0
- Microsoft Internet Explorer v5.0
- Microsoft Internet Explorer v5.5
- Microsoft Internet Explorer v6.0
- Netscape Communicator v4.5

- Netscape Communicator v4.6
- Netscape Communicator v4.7
- Netscape Communicator v6.0

For the browser to operate the Web interface correctly JavaScript™ and Cascading Style Sheets must be enabled on your browser. These features are enabled on a browser by default. You will only need to enable them if you have changed your browser settings.

You cannot access the Web interface.
If the browser on the client machine that you are using to configure the Webcache is also using the Webcache as a proxy, and you enable Web Client Blocking, you must ensure that you add the client machine to the *Except these IP Addresses* field. If you do not do this, access from the client machine to the Webcache will be blocked, preventing you from using the Web interface.You can regain access by doing one of the following:

- Changing the client machine's browser settings to remove the use of the Webcache as a proxy.
- Using a browser on a client machine whose IP address is not blocked by Web Client Blocking to access the Web Interface.
- Using a browser on a client machine whose IP address is not blocked due to restricted access addresses.
- Accessing the webcache on port 8081 if port 80 has been blocked for management.
- Accessing the Webcache using the console port.

You are using Internet Explorer to manage multiple Webcaches and the Device Summary table is not updating.
If you are using Internet Explorer to manage more than one Webcache at the same time, the settings displayed in the Device Summary table will not update when you change between the Webcaches. You must delete the browser's Temporary Internet Pages and then click *Refresh* to update the Web interface with the correct information.

Some of the Web interface is not displayed in the Web browser after downloading.
The Web interface responds slowly to commands.
This is probably due either to misbehavior of the Web browser, or large

amounts of traffic on the network. Reload the Web interface by clicking *Reload* on the browser's toolbar. If this does not solve the problem, go to the end of the URL in the *Address* field of the browser and press [Return]. This causes the page to be reloaded entirely. If this does not solve the problem, click in the part of the Web interface that has not displayed and repeat the above.

Web interface screens are not displayed or do not operate correctly following a Software Upgrade or Software Installation
You must clear the Web browser cache.
In Internet Explorer, select *Tools* > *Options* > *Delete Files*.
In Netscape, select *Edit* > *Preferences* > *Advanced* > *Cache* and select both *Clear Disk Cache* and *Clear Memory Cache*.

Some of the text is not displayed in the Web interface screens.
You must ensure that the Display Font Size for your System is set to `Small Fonts (96 dpi)`. If it is set to `Large Fonts`, the Web interface will not display correctly.

"URL not found" messages are displayed when the Contacts, Home Page, Library or Support icons in the Help View are clicked.
Your management workstation cannot access the World Wide Web. Contact your network administrator.

You forget the password for the *admin* user name and can no longer perform important management operations.
Use the password recovery method outlined on page 107 to define a new password for the *admin* user name.

The System Time does not update in the Web interface
The system time shown in the Device Summary table does not get automatically refreshed in the Web interface. Click *Refresh* in your browser to update the time.

The System Time is inaccurate
Check that:

- The Webcache system time is configured to be set through the Network Time Protocol (NTP).
- NTP is enabled on the Webcache. If it is enabled, ping the NTP server that you have specified to check that it is operational.

If the NTP server is not functional, or you are not confident it is working correctly, try using another NTP server.

- If NTP is enabled and operational, check that traffic on TCP port 123 is not blocked by a Firewall between the Webcache and the NTP server.
- The timezone is set correctly.

Alternatively, the Webcache system time can be set manually. If you have configured the system time manually and it is inaccurate, the Webcache clock has probably drifted over time. 3Com recommends that you use the Network Time Protocol to prevent this. If this is not possible, reset the system time manually using the Time Configuration screen. Also check that the timezone is set correctly.

Software upgrade detection has failed
You must ensure that FTP requests are not blocked by a Firewall on TCP ports 20 and 21. Upgrade detection will fail if your Firewall blocks FTP requests. A "Software Upgrade Download Failed" SNMP trap and e-mail notification will be issued (if configured) to inform you of the failure; for further information, see "Automatic System Events" on page 214.

Solving Command Line Interface Problems

The Command Line Interface responds slowly to commands.
This is probably due to large amounts of traffic on the network. Logout and then login again later when the amount of traffic to the Webcache is less.

You forget the password for the *admin* user name and can no longer perform important management operations.
Use the password recovery method outlined on page 107 to define a new password for the admin user name.

Solving Webcache Performance Problems

The performance of the Webcache is poor
Check:

- Whether any of the cache storage devices have failed. Examine the front panel LEDs to ensure there are no faults found. If there are, enter this URL into your Internet browser:

  `http://knowledgebase.3com.com/division/publisher.asp?id=2.0.77094716.3290900`
  (correct at time of publication)

This service provides access to instructions about how to obtain a replacement cache storage device.

As long as there is at least one working cache storage device, the Webcache will operate as a cache, but the failure of a cache storage device will degrade the performance of the Webcache. If all cache storage devices have failed, the Webcache will pass all requests through to the Web without performing any caching.

- The Caching Performance graphs in the Performance View. Specifically check the Hit and Miss Rate graph. If the hit rate percentage is low, save the Access Log onto another device in your network. Then use a utility such as Webtrends to analyze your web traffic and see if a higher hit rate is expected.
- Run a network performance test between your client machines and your Webcache using the Ping command. Check that the response time is reasonable.
- Analyze your network to look for network errors.
- If you are using Proxy Auto Configuration (PAC) files to configure browsers, try setting the browser settings manually to avoid the overhead of PAC files.
- If you are using the Web Proxy Auto-Discovery (WPAD) protocol to configure the browsers on client machines, try setting the browser settings manually to avoid the overhead of the WPAD protocol.
- The Webcache Domain Name Server configuration to check that it can access the DNS server.

The Firewall does not allow the Webcache to connect to the World Wide Web

You must configure your Firewall to pass through traffic on TCP port number 80. This is the port number that the Webcache uses to communicate with origin servers in all deployment modes. The SuperStack 3 Firewall passes through traffic on port 80 by default.

The SuperStack 3 Firewall does not allow the Webcache to connect to the LAN

In the Proxy Relay deployment mode the SuperStack 3 Firewall is essentially the default gateway for all client machines who are accessing servers on the LAN. You must configure the Firewall to allow devices on the DMZ port to access the LAN servers by modifying the security options of the Firewall, as the Firewall does not allow DMZ to LAN access by default.

For further information about deploying the SuperStack 3 Firewall with the Webcache, see "Proxy Relay Deployment" on page 44.

You have enabled Cache Bypass and the Webcache can no longer connect to the World Wide Web

In a WCCP version 2.0 deployment, if the Webcache and client machines reside on the same subnet in your network, special settings are required on the Cisco router to implement the WCCP solution (see page 324). Configuring the Webcache for Cache Bypass will no longer work in this configuration. Enabling Cache Bypass on the Webcache will result in a loss of web connectivity. You should ensure that Cache Bypass is disabled on the Webcache.

To disable Cache Bypass:

1. Log in to the Web interface.
2. Click *Device* on the Toolbar.
3. Select *Caching* > *Cache Bypass* > *Setup Cache Bypass* in the Navigation Tree.
4. Uncheck *Enable Cache Bypass*.

You can implement client machine bypass capability using the Cisco router to perform the bypass. Consult the documentation that accompanies your Cisco router for further information. See also "Client Exclusion List" *on* page 323.

Some Sites do not display correctly when using the SuperStack 3 Firewall and Webcache in a Proxy Relay configuration

Check that the Webcache is configured for Proxy Mode only. Ensure that the *Enable Transparent Mode* and *Enable Inline Mode* tick boxes are not checked in the *Caching* > *Set Caching Mode* command.

Solving Client Browser Problems

The Customize Response page is not displayed when a Web site is blocked.

There is a default option in Microsoft Internet Explorer 4 and later versions that will cause a "friendly HTTP error message" to be displayed when a Web site is blocked, rather than the response page generated by the Webcache. You can turn this setting off by selecting Tools > Internet Options > Advanced and unchecking *Show friendly HTTP error messages*.

The Proxy Auto Configuration (PAC) file is ignored by the Web browser.

You must set the Web browser to read the PAC file for its settings; for further information, see "Proxy Auto Configuration (PAC) Files" on page 48. In Netscape, you can enter a shortened PAC address such as webcache:8082 and Netscape successfully configures itself using the PAC file. In Internet Explorer, however, this address is not recognized and you are not warned that the PAC file is being ignored. You must include `http://` at the start of the URL e.g. `http://webcache:8082`.

Solving General Webcache Problems

The Webcache fails to power-up

Check if:

- The Power/Self Test LED on the front panel is Yellow or Off. This possibly indicates a system error. If so, contact 3Com support personnel.
- The Power/Self Test LED on the front panel is flashing Yellow. An internal emergency recovery procedure has reset the Webcache back to its factory default settings. The LED continues to flash yellow until you change the IP address of the Webcache. For further information, see "Solving Problems Indicated by LEDs" on page 277.

If no front panel LEDs are lit, check the power connection to the Webcache.

No Web sites can be accessed using the Webcache

Check the Webcache DNS and Default Router settings, and try to ping these addresses from the Webcache.

If Content Filtering is enabled and the default rule is set to *Deny All* then, if the filter service is not available or the license expires, the Webcache will block all Web traffic.

Local domain sites cannot be accessed using the Webcache as a proxy

This is caused by an incorrect setting of the DNS domain name on the

Webcache. Check the DNS configuration of the Webcache. You must ensure that you enter the full domain e.g. `3com.com`. It is not sufficient to only enter `3Com`.

The Cache Storage Status LED on the front panel of the Webcache is Yellow

A yellow Cache Storage Status LED indicates that the cache storage device has failed and needs to be replaced.

Only the Webcache 3000 has accessible cache storage devices; you cannot remove them from the Webcache 1000. If a cache storage device fails in the Webcache 1000, you should return the whole unit to 3Com.

If a cache storage device fails in the Webcache 3000, you can remove the device and return it to 3Com for replacement. For further information, see the "Replacing a Failed Cache Storage Device" appendix on page 314.

Accessing NBX Call Logging Information Fails

The 3Com NBX products can produce sizeable Call Logging information via a Web based application. This process may take several minutes to complete depending on the amount of Call Logging information to be retrieved. When there is a SuperStack 3 Webcache deployed in Transparent mode, using a SuperStack 3 4400, 4924 or 4950 switch, it is possible for the Webcache to time out the response from the NBX. This results in the administrator of the NBX being unable to retrieve the Call Logging information.

You should ensure that software version 2.0 or later is installed on the SuperStack 3 Webcache. The problem can be resolved by adding the NBX to the Cache Bypass List on the Webcache. To do this:

1. Log in to the Web interface.
2. Click *Device* on the Toolbar.
3. Select *Caching* > *Cache Bypass* > *Edit Client Bypass* in the Navigation Tree.
4. In the *Enter the IP Address or IP Address Range* field, enter the IP address of the NBX and click *Add*.
5. Click *OK*. On completion, the Webcache will not be involved in accesses to the NBX Web interface, and the Call Logging information can be retrieved.

X APPENDICES AND INDEX

A SAFETY INFORMATION

You must read the following safety information before carrying out any installation or removal of components, or any maintenance procedures on the Webcache 1000/3000.

WARNING: *Warnings contain directions that you must follow for your personal safety. Follow all directions carefully.*
You must read the following safety information carefully before you install or remove the unit.

AVERTISSEMENT: *Les avertissements présentent des consignes que vous devez respecter pour garantir votre sécurité personnelle. Vous devez respecter attentivement toutes les consignes.*
Nous vous demandons de lire attentivement les consignes suivantes de sécurité avant d'installer ou de retirer l'appareil.

VORSICHT: *Warnhinweise enthalten Anweisungen, die Sie zu Ihrer eigenen Sicherheit befolgen müssen. Alle Anweisungen sind sorgfältig zu befolgen.*
Sie müssen die folgenden Sicherheitsinformationen sorgfältig durchlesen, bevor Sie das Gerät installieren oder ausbauen.

Important Safety Information

WARNING: *Installation and removal of the unit must be carried out by qualified personnel only.*

WARNING: *The unit must be earthed (grounded).*

WARNING: *The unit must be connected to an earthed (grounded) outlet to comply with European safety standards and EMC standards.*

WARNING: *Power Cord Set*
This must be approved for the country where it is used:

UK — *The supply plug must comply with BS1363 (3-pin 13 amp) and be fitted with a 5A fuse which complies with BS1362.*

The mains cord must be <HAR> or <BASEC> marked and be of type HO3VVF3gO.75 (minimum).

Europe — *The supply plug must comply with CEE 7/7 (“SCHUKO”).*

The supply plug must comply with CE123-16/VII.

USA and Canada — *The cord set must be UL-approved and CSA certified.*

The minimum specification for the flexible cord is:
No. 18 AWG
Type SV or SJ
3-conductor

The cord set must have a rated current capacity of at least 10A.

The attachment plug must be an earth-grounding type with a NEMA 5-15P (15A, 125V) or NEMA 6-15P (15A, 250V) configuration.

Denmark — *The supply plug must comply with section 107-2-D1, standard DK2-1a or DK2-5a.*

Switzerland — *The supply plug must comply with SEV/ASE 1011.*

WARNING: *This unit operates under SELV (Safety Extra Low Voltage) conditions according to IEC 950. The conditions are only maintained if the equipment to which it is connected also operates under SELV conditions.*

WARNING: *The appliance coupler (the connector to the unit and not the wall plug) must have a configuration for mating with an EN60320/IEC320 appliance inlet.*

WARNING: *The socket outlet must be near to the unit and easily accessible. You can only remove power from the unit by disconnecting the power cord from the outlet.*

WARNING: *France and Peru only*
This unit cannot be powered from IT† supplies. If your supplies are of IT type, this unit must be powered by 230V (2P+T) via an isolation transformer ratio 1:1, with the secondary connection point labelled Neutral, connected directly to earth (ground).
†Impédance à la terre

WARNING: *U.K. Only:*
If connecting a modem to the console port of the Webcache 1000/3000, only use a modem which is suitable for connection to the telecommunications system.

WARNING: *RJ-45 Ports. These are shielded RJ-45 data sockets. They cannot be used as standard traditional telephone sockets, or to connect the unit to a traditional PBX or public telephone network. Only connect RJ-45 data connectors, network telephony systems, or network telephones to these sockets.*

Either shielded or unshielded data cables with shielded or unshielded jacks can be connected to these data sockets.

Consignes importantes de sécurité

AVERTISSEMENT: *L'installation et la dépose de ce groupe doivent être confiés à un personnel qualifié.*

AVERTISSEMENT: *Vous devez mettre l'appareil à la terre (à la masse) ce groupe.*

AVERTISSEMENT: *Vous devez raccorder ce groupe à une sortie mise à la terre (mise à la masse) afin de respecter les normes européennes de sécurité.*

AVERTISSEMENT: *Cordon électrique*
Il doit être agréé dans le pays d'utilisation:

Royaume-Uni	*La prise secteur doit être conforme aux normes BS1363 (tripolaire, 13 amp) et équipée d'un fusible 5A à conformité BS1362.* *Le cordon secteur doit porter la mention <HAR> ou <BASEC> et doit être de type HO3VVF3GO.75 (minimum).*
Europe	*La prise secteur doit être conforme aux normes CEE 7/7 ("SCHUKO")* *La prise secteur doit être conforme aux normes CEI23-16/VII.*

Etats-Unis et Canada	*Le cordon doit avoir reçu l'homologation des UL et un certificat de la CSA* *Le cordon souple doit respecter, à titre minimum, les spécifications suivantes:* *Calibre 18 AWG* *Type SV ou 5J* *A 3 conducteurs* *Le cordon doit être en mesure d'acheminer un courant nominal d'au moins 10 A* *La prise femelle de branchement doit être du type à mise à la terre (mise à la masse) et respecter la configuration NEMA 5-15P (15 A, 125 V) ou NEMA 6-15P (15 A, 250 V)*
Danemark	*La prise mâle d'alimentation doit respecter la section 107-2 D1 de la norme DK2 1a ou DK2 5a*
Suisse	*La prise mâle d'alimentation doit respecter la norme SEV/ASE 1011*

AVERTISSEMENT: *L'appareil fonctionne à une tension extrêmement basse de sécurité qui est conforme à la norme CEI 950. Ces conditions ne sont maintenues que si l'équipement auquel il est raccordé fonctionne dans les mêmes conditions.*

AVERTISSEMENT: *Le coupleur d'appareil (le connecteur du groupe et non pas la prise murale) doit respecter une configuration qui permet un branchement sur une entrée d'appareil EN60320/CEI 320.*

AVERTISSEMENT: *France et Pérou uniquement: Ce groupe ne peut pas être alimenté par un dispositif à impédance à la terre. Si vos alimentations sont du type impédance à la terre, ce groupe doit être alimenté par une tension de 230 V (2 P+T) par le biais d'un transformateur d'isolement à rapport 1:1, avec un point secondaire de connexion portant l'appellation Neutre et avec raccordement direct à la terre (masse).*

AVERTISSEMENT*: Points d'accès RJ-45. Ceux-ci sont protégés par des prises de données. Ils ne peuvent pas être utilisés comme prises de téléphone conventionnelles standard, ni pour la connection de l'unité à un réseau téléphonique central privé ou public. Raccorder seulement* *connecteurs de données RJ-45, systèmes de réseaux de téléphonie ou téléphones de réseaux à ces prises.*

Il est possible de raccorder des câbles protégés ou non protégés avec des jacks protégés ou non protégés à ces prises de données.

Wichtige Sicherheitsinformationen

VORSICHT: *Die Installation und der Ausbau des Geräts darf nur durch Fachpersonal erfolgen.*

VORSICHT: *Das Gerät muß geerdet sein.*

VORSICHT: *Das Gerät muß an eine geerdete Steckdose angeschlossen werden, die europäischen Sicherheitsvorschriften und den Vorschriften zur EMV entspricht.*

VORSICHT: *Netzstecker*
Dies muss von dem Land, in dem es benutzt wird geprüft werden.

Vereinigtes Königreich:	*Der Netzstecker muß die Norm BS1363 (13 Ampere, 3 Stifte) erfüllen und mit einer 5-A-Sicherung gemäß Norm BS1362 ausgestattet sein.* *Das Netzkabel muß vom Typ HO3VVF3GO.75 (Mindestanforderung) sein und die Aufschrift <HAR> oder <BASEC> tragen.*
Europa	*Der Netzstecker muß die Norm CEE 7/7 erfüllen ("SCHUKO").* *Der Netzstecker muß die Norm CEI23-16/VII erfüllen.*
USA und Kanada	-
Dänemark	*Der Netzstecker muß die Vorschriften laut Abshcnitt 107-2-01 der Norm DK2-1a oder DK2-5a erfüllen.*
Die Schweiz	*Der Netzstecker muß die Norm SEV/ASE 1011 erfüllen.*

VORSICHT: *Der Betrieb dieses Geräts erfolgt unter den SELV-Bedingungen (Sicherheitskleinstspannung) gemäß IEC 950. Diese*

Bedingungen sind nur gegeben, wenn auch die an das Gerät angeschlossenen Geräte unter SELV-Bedingungen betrieben werden.

***VORSICHT:** Der Gerätestecker (der Anschluß an das Gerät, nicht der Wandsteckdosenstecker) muß eine passende Konfiguration für einen Geräteeingang gemäß EN60320/IEC320 haben.*

***VORSICHT:** Nur für Frankreich: Diese Einheit kann nicht über Anschlüsse des Typs IT† betrieben werden. Wenn Sie über IT-Anschlüsse verfügen, muß die Einheit über einen geerdeten Trenner mit einem. Übersetzungsverhältnis 1:1 mit 230 V (2P+T) betrieben werden; dabei muß der zweite Anschlußpunkt die Bezeichnung Neutral tragen.*
†Impédance à la terre.

***VORSICHT:** RJ-45-Porte. Diese Porte sind geschützte Datensteckdosen. Sie dürfen weder wie normale traditionelle Telefonsteckdosen noch für die Verbindung der Einheit mit einem traditionellem privatem oder öffentlichem Telefonnetzwerk gebraucht werden. Nur RJ-45-Datenanscluße, Telefonnetzsysteme or Netztelefone an diese Steckdosen anschließen.*

Entweder geschützte oder ungeschützte Buchsen dürfen an diese Datensteckdosen angeschlossen werden.

B CABLE SPECIFICATIONS AND PIN-OUTS

Cable Specifications

The Webcache supports the following cable types:

- **Category 3**
  One of five grades of Twisted Pair (TP) cabling defined by the EIA/TIA-586 standard. Category 3 is voice grade cable and can only be used in Ethernet networks (10BASE-T) to transmit data at speeds of up to 10 Mbps.
- **Category 5**
  One of five grades of Twisted Pair (TP) cabling defined by the EIA/TIA-586 standard. Category 5 can be used in Ethernet (10BASE-T) and Fast Ethernet networks (100BASE-TX) and can transmit data at speeds of up to 100 Mbps. Category 5 cabling is better to use for network cabling than Category 3, because it supports both Ethernet (10 Mbps) and Fast Ethernet (100 Mbps) speeds.

3Com recommends that you use Category 5 cable — the maximum segment length for this type of cable is 100 m (328 ft).

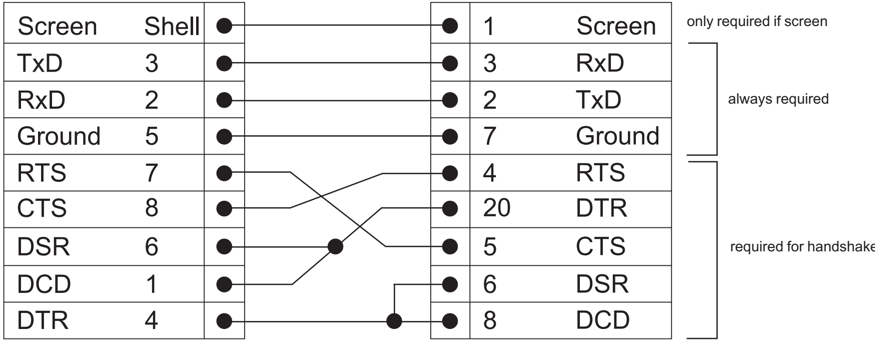
Pin-outs

Null-Modem Cable

9-pin to RS-232 25-pin

Webcache 1000/3000
Cable connector: 9-pin female

PC/Terminal
Cable connector: 25-pin male/female



Screen	Shell
TxD	3
RxD	2
Ground	5
RTS	7
CTS	8
DSR	6
DCD	1
DTR	4

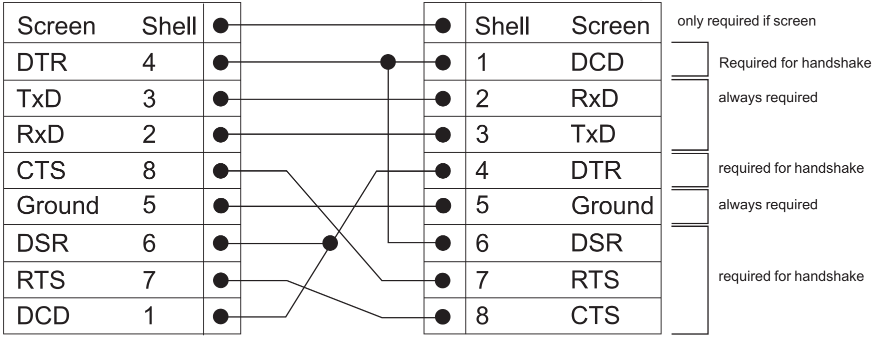
1	Screen
3	RxD
2	TxD
7	Ground
4	RTS
20	DTR
5	CTS
6	DSR
8	DCD

PC-AT Serial Cable

9-pin to 9-pin

Webcache 1000/3000
Cable connector: 9-pin female

PC-AT Serial Port
Cable connector: 9-pin female

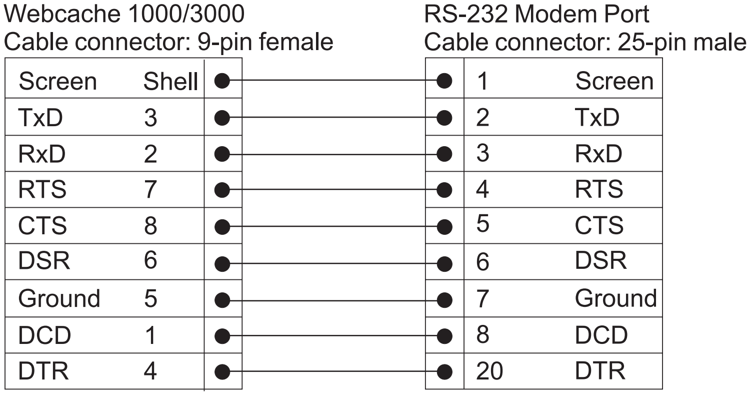


Screen	Shell
DTR	4
TxD	3
RxD	2
CTS	8
Ground	5
DSR	6
RTS	7
DCD	1

Shell	Screen
1	DCD
2	RxD
3	TxD
4	DTR
5	Ground
6	DSR
7	RTS
8	CTS

Modem Cable

9-pin to RS-232 25-pin



Webcache 1000/3000
Cable connector: 9-pin female

RS-232 Modem Port
Cable connector: 25-pin male

Screen	Shell	1	Screen
TxD	3	2	TxD
RxD	2	3	RxD
RTS	7	4	RTS
CTS	8	5	CTS
DSR	6	6	DSR
Ground	5	7	Ground
DCD	1	8	DCD
DTR	4	20	DTR

RJ-45 Pin Assignments

Pin assignments are identical for 10BASE-T and 100BASE-TX RJ-45 connectors.

Table 12 Pin Assignments

Pin Number	Signal	Function
Ports configured as MDI		
1	Transmit Data +	Bidirectional Data A+
2	Transmit Data +	Bidirectional Data A-
3	Receive Data +	Bidirectional Data B+
4	Not assigned	Bidirectional Data C+
5	Not assigned	Bidirectional Data C-
6	Receive Data –	Bidirectional Data B-
7	Not assigned	Bidirectional Data D+
8	Not assigned	Bidirectional Data D-
Ports configured as MDIX		
1	Receive Data +	Bidirectional Data B+
2	Receive Data -	Bidirectional Data B-
3	Transmit Data +	Bidirectional Data A+
4	Not assigned	Bidirectional Data D+
5	Not assigned	Bidirectional Data D-
6	Transmit Data –	Bidirectional Data A-
7	Not assigned	Bidirectional Data C+
8	Not assigned	Bidirectional Data C-

C TECHNICAL SPECIFICATIONS

Physical Dimensions	Height: 44.45mm (1.75 in.) x Width: 482.6 mm (19.00 in.) x Depth: 610 mm (24.02 in.) (not including bulge). Weight: 13 Kg (28.66 lbs)
Environmental Requirements	
Operating Temperature	0 ° to 40 °C (32 ° to 104 °F)
Storage Temperature	–10 ° to +70 °C (14 ° to 158 °F)
Operating Humidity	10–95% relative humidity, non-condensing
Standards	EN60068 to 3Com schedule (Package testing: paras 2.1, 2.2, 2.30, and 2.32. Operational testing: paras 2.1, 2.2, 2.30 and 2.13).
Safety	
Agency Certifications	UL 1950, EN60950, CSA 22.2 No. 950, IEC 60950, NOM-019 SCFI, AS/NZS 60950
EMC	
Emissions	ICES-003 Class A, FCC Part 15 Class A, EN55022 Class A, VCCI Class A, AS/NZS 3548 Class A, CISPRR 22 Class A, EN61000-3-2, EN61000-3-3, CNS 13438 Class A, Korean EMI Class A
Immunity	EN 55024
Heat Dissipation	400 watts maximum (1300 BTU/hour maximum)
Power Supply	
AC Line Frequency	50/60 Hz
Input Voltage Options	90–240 VAC
Current Rating	4 A (amps) (maximum)

(continued)

Standards Supported	**SNMP:**	**Terminal Emulation:**
	SNMP protocol (RFC 1517)	Telnet (RFC 854)
	MIB-II (RFC 1213)	**Protocols Used for Administration:**
	Interface MIB (RFC 1573)	UDP (RFC 768)
	Remote Monitoring MIB (RFC 1757)	IP (RFC 791)
		ICMP (RFC 792)
		TCP (RFC 793)
		ARP (RFC 826)
		TFTP (RFC 783)

D TECHNICAL SUPPORT

3Com provides easy access to technical support information through a variety of services. This appendix describes these services.

You can purchase additional services from your network supplier or from 3Com. These services can enhance warranty response times. They can also provide supplementary services not included in your product warranty. These services include telephone support 24 hours a day, 7 days a week, advance shipment of replacement hardware, and on-site support.

Information contained in this appendix is correct at time of publication. For the most recent information, 3Com recommends that you access the 3Com Corporation World Wide Web site.

Online Technical Services

3Com offers worldwide product support 24 hours a day, 7 days a week, through the following online systems:

- World Wide Web site
- 3Com Knowledgebase Web Services
- 3Com FTP site

World Wide Web Site

To access the latest networking information on the 3Com Corporation World Wide Web site, enter this URL into your Internet browser:

`http://www.3com.com/`

This service provides access to online support information such as technical documentation and software, as well as support options that range from technical education to maintenance and professional services.

3Com Knowledgebase Web Services

The 3Com Knowledgebase is a database of technical information to help you install, upgrade, configure, or support 3Com products. The Knowledgebase is updated daily with technical information discovered by 3Com technical support engineers. This complimentary service, which is available 24 hours a day, 7 days a week to 3Com customers and partners, is located on the 3Com Corporation World Wide Web site at:

`http://knowledgebase.3com.com`

3Com FTP Site

Download content across the Internet from the 3Com public FTP site. This service is available 24 hours a day, 7 days a week.

To connect to the 3Com FTP site, enter the following information into your FTP client:

- Hostname: **`ftp.3com.com`**
- Username: **`anonymous`**
- Password: **`<your Internet e-mail address>`**

You do not need a user name and password with Web browser software such as Netscape Navigator and Microsoft Internet Explorer.

Support from Your Network Supplier

If you require additional assistance, ask your network supplier about the professional services available in your area for the assessment, installation, and implementation of your network. You can also purchase maintenance contracts for most products.

When you contact your network supplier for assistance, have the following information ready:

- Product model name, part number, and serial number
- A list of system hardware and software, including revision levels
- Diagnostic error messages
- Details about recent configuration changes, if applicable

If you are unable to contact your network supplier, see the following section on how to contact 3Com.

Support from 3Com

If you are unable to obtain assistance from the 3Com online technical resources discussed earlier in this appendix, or from your network supplier, 3Com offers a range of support services. Purchase of a support contract gives you priority response and is typically more cost effective than purchasing service for a specific incident. To find out more about your support options, e-mail or call the 3Com technical support services at the location nearest you.

Internet Support

Some 3Com regions offer an Internet support service. To access this service for your region, use the appropriate URL or e-mail address from the list below.

Asia, Pacific Rim

From this region, e-mail:

apr_technical_support@3com.com

Europe, Middle East and Africa

From this region, enter the URL:

http://emea.3com.com/support/email.html

Latin America

Spanish speakers, enter the URL:

http://lat.3com.com/lat/support/form.html

Portuguese speakers, enter the URL:

http://lat.3com.com/br/support/form.html

English speakers, e-mail:

lat_support_anc@3com.com

Telephone Support

When you contact 3Com for assistance, have the following information ready:

- Product model name, part number, and serial number
- A list of system hardware and software, including revision levels
- Diagnostic error messages
- Details about recent configuration changes, if applicable

Here is a list of worldwide technical telephone support numbers. These numbers are correct at the time of publication. Refer to the 3Com Web site for updated information.

Country	Telephone Number	Country	Telephone Number
Asia, Pacific Rim			
Australia	1 800 678 515	Philippines	1235 61 266 2602 or +61 2 9937 5076
Hong Kong	800 933 486		
India	+61 2 9424 5179 or 000800 650 1111	P.R. of China	10800 61 00137 or 021 6350 1590 or 00800 0638 3266
Indonesia	001 803 61009		
Japan	00531 616 439 or 03 5977 7991	Singapore	800 6161 463
		S. Korea	00798 611 2230 or 02 3455 6455
Malaysia	1800 801 777		
New Zealand	0800 446 398	Taiwan	00801 611 261
Pakistan	+61 2 9937 5083	Thailand	001 800 611 2000
Europe, Middle East, and Africa			
From anywhere in these regions, call:	+44 (0)1442 435529		
From the following countries, you may use the numbers shown:			
Austria	01 7956 7124	Luxembourg	800 29880
Belgium (Flemish)	070 700 000	Netherlands	0900 777 7737
Belgium (French)	070 700 770	Norway	815 33 047
Denmark	7010 7289	Poland	00800 441 1357
Finland	01080 2783	Portugal	707 200 123
France	0825 809 622	South Africa	0800 991196
Germany	01805 404 747	Spain	9 021 60455
Hungary	06800 14466	Sweden	07711 14453
Ireland	1800 509359	Switzerland	08488 50112
Israel	1800 943 2632	U.K.	0870 241 3901
Italy	199 161346		
Latin America			
Antigua	1 800 988 2112	Guatemala	AT&T +800 998 2112
Argentina	0 810 444 3COM	Haiti	57 1 657 0888
Aruba	1 800 998 2112	Honduras	AT&T +800 998 2112
Bahamas	1 800 998 2112	Jamiaca	1 800 998 2112
Barbados	1 800 998 2112	Martinique	571 657 0888
Belize	52 5 201 0010	Mexico	01 800 849CARE
Bermuda	1 800 998 2112	Nicaragua	AT&T +800 998 2112
Bonaire	1 800 998 2112	Panama	AT&T +800 998 2112
Brazil	0800 13 3COM	Paraguay	54 11 4894 1888
Cayman	1 800 998 2112	Peru	AT&T +800 998 2112
Chile	AT&T +800 998 2112	Puerto Rico	1 800 998 2112
Colombia	AT&T +800 998 2112	Salvador	AT&T +800 998 2112
Costa Rica	AT&T +800 998 2112	Trinidad and Tobago	1 800 998 2112
Curacao	1 800 998 2112	Uruguay	AT&T +800 998 2112
Ecuador	AT&T +800 998 2112	Venezuela	AT&T +800 998 2112
Dominican Republic	AT&T +800 998 2112	Virgin Islands	57 1 657 0888
North America	1 800 876 3266		

Returning Products for Repair

Before you send a product directly to 3Com for repair, you must first obtain an authorization number. Products sent to 3Com without authorization numbers will be returned to the sender unopened, at the sender's expense.

To return the a product to 3Com:

1. Ensure that the product has a fault that cannot be corrected by e-mail or telephone support.

   3Com recommends that you use the technical support services detailed in this chapter before returning your product for repair.

2. Obtain a Return Materials Authorization number (RMA) by either:

   - entering the following URL into your Internet browser:

     `http://www.3com.com/support/en_US/repair`

     or

   - calling or faxing one of the numbers listed in Table 13 below.

3. When you receive a replacement Webcache, register the product at:

   `http://www.3com.com/register`

   If you have a Web Site Filter license you will not be able to use the Web Site Filter service until you re-register your Webcache and Web Site Filter License.

Your Web Site Filter License is non-transferable, unless your Webcache units fails. If your Webcache fails and it is using Web Site Filter, you can transfer the Web Site Filter licenses to a replacement Webcache. You must first raise a Return Materials Authorization (RMA) with 3Com for the failed Webcache. This will release any registered Web Site Filter license keys allowing you to re-register them against the replacement product.

Table 13 Product Return Telephone Numbers

Country	Telephone Number	Country	Telephone Number
Asia, Pacific Rim			
From anywhere in this region, call:	+ 65 543 6500 phone + 65 543 6348 fax		
Europe, Middle East and Africa			
From anywhere in these regions, call:	+44 (0)1442 435529		
From the following countries, you may use the numbers shown:			
Austria	01 7956 7124	Luxembourg	800 29880
Belgium (Flemish)	070 700 000	Netherlands	0900 777 7737
Belgium (French)	070 700 770	Norway	815 33 047
Denmark	7010 7289	Poland	00800 441 1357
Finland	01080 2783	Portugal	707 200 123
France	0825 809 622	South Africa	0800 991196
Germany	01805 404 747	Spain	9 021 60455
Hungary	06800 14466	Sweden	07711 14453
Ireland	1800 509359	Switzerland	08488 50112
Israel	1800 943 2632	U.K.	0870 241 3901
Italy	199 161346		
Latin America			
Antigua	1 800 988 2112	Guatemala	AT&T +800 998 2112
Argentina	0 810 444 3COM	Haiti	57 1 657 0888
Aruba	1 800 998 2112	Honduras	AT&T +800 998 2112
Bahamas	1 800 998 2112	Jamiaca	1 800 998 2112
Barbados	1 800 998 2112	Martinique	571 657 0888
Belize	52 5 201 0010	Mexico	01 800 849CARE
Bermuda	1 800 998 2112	Nicaragua	AT&T +800 998 2112
Bonaire	1 800 998 2112	Panama	AT&T +800 998 2112
Brazil	0800 13 3COM	Paraguay	54 11 4894 1888
Cayman	1 800 998 2112	Peru	AT&T +800 998 2112
Chile	AT&T +800 998 2112	Puerto Rico	1 800 998 2112
Colombia	AT&T +800 998 2112	Salvador	AT&T +800 998 2112
Costa Rica	AT&T +800 998 2112	Trinidad and Tobago	1 800 998 2112
Curacao	1 800 998 2112	Uruguay	AT&T +800 998 2112
Ecuador	AT&T +800 998 2112	Venezuela	AT&T +800 998 2112
Dominican Republic	AT&T +800 998 2112	Virgin Islands	57 1 657 0888
North America From USA and Canada, call:	1 800 876 3266 phone 1 508 323 6061 fax (not toll free)		

E DEFAULT SETTINGS FOR THE WEBCACHE

Default Settings

Table 14 shows the factory default settings for the Webcache:

Table 14 Default Settings

Feature	Webcache 1000/3000
Port Status	LAN Port: Enabled Auto-negotiation WAN Port: Enabled Auto-negotiation
Port Speed	10BASE-T/100BASE-TX Mbps ports are auto-negotiated
Duplex Mode	10BASE-T and 100BASE-TX ports are auto-negotiated
Flow Control	Enabled with auto-negotiation in full duplex
Console Port	9600 Baud, 8 data bits, no parity, 1 stop bit, no flow control
IP Address	192.168.1.253 non-broadcast address
Subnet Mask	255.255.255.0
Domain Name System (DNS) Server	0.0.0.0
Default Router	0.0.0.0
Host Name	Null
Domain Name System (DNS) Domain	Null
Caching	Enabled
Caching Mode	Proxy Cache mode on port 8080
Caching Port	Proxy Cache mode: 8080
	Transparent, Inline Cache or WCCP modes: 80
Access Logging	On — squid format
Web Site Blocking	Disabled
Web Client Blocking	Disabled
Cache Bypass	Disabled

(continued)

Feature	Webcache 1000/3000
Cache Control	Disabled
Web Cache Communication Protocol (WCCP)	Disabled
Simple Network Management Protocol (SNMP)	Enabled but requires configuration
Network Time Protocol (NTP)	Disabled
Web Browser Auto-Configuration	Disabled
Upgrade Notification	Enabled
Upgrade Detection/Download	Enabled
Email Notification Events	Enabled but requires SMTP configuration
MRTG/RRDTool Graphs	Always Enabled
admin Password	(none)
IP access control	Disabled
Password Recovery	Enabled
Web site blocking	Disabled
Web Client Blocking	Disabled
Content Filter Mode	Manual
Content Preload	Disabled
3Com Web Scheduler	Disabled
Filter Exclusion	Disabled
Allow List	Disabled
Deny List	Disabled

If you initialize the Webcache by selecting *System* > *Control* > *Initialize* from the Device menu in the Web interface or by entering **`system control initialize`** in the Command Line Interface, the following settings are retained to allow you to connect to and manage the Webcache:

- IP Address
- Subnet Mask
- Default Router
- Domain Name System (DNS) Server

- Host Name
- Domain Name System (DNS) Domain

All other settings are reset to the default values shown in Table 14.

Getting Started Wizard Settings

The following table shows the settings that you can configure in both the Web interface and Command Line Interface Getting Started wizards.

Table 15 Getting Started wizard Settings

Setting	Meaning	Default	Example
Name	A name that uniquely identifies the Webcache in your network. Can be up to 255 characters long.	(none)	Webcache 3000 #1
Location	A description that identifies the location of the Webcache in your network. Can be up to 255 characters long.	(none)	Main server room
Contact	The name of the person who is responsible for the Webcache. Can be up to 255 characters long.	(none)	Joe Brown
IP Address	A unique IP address for the Webcache.	192.168.1.253	192.168.1.253
Subnet Mask	A suitable Subnet Mask for the Webcache.	(none)	255.255.255.0
Default Router	The IP address of the default IP router (gateway) in your network.	(none)	192.168.2.0
Host Name	The Host Name is combined with the DNS Domain Name to give the internet name of the Webcache. The host name is the name of the Webcache within the local domain.	(none)	webcache
Domain Name System (DNS) Domain Name	The DNS Domain Name is combined with the Host Name to give the internet name of the Webcache. The Domain Name is a grouping of computers with related properties.	(none)	mycompany.com

(continued)

Setting	Meaning	Default	Example
Search Domains	Search domains allow you to control how unqualified URLs are handled by the Webcache. An example of an unqualified URL is **`http://info/`**. They are typically used for Intranet web servers. If 2 search domains are specified, the Webcache will search for: ■ URL.host_name_dns_domain_name ■ URL.first_search_domain ■ URL.second_search_domain ■ URL in that order to find and cache the unqualified URL.	(none)	test.mycompany.com mycompany.com
Domain Name System (DNS) Servers	The IP addresses of the primary and backup Domain Name System (DNS) servers in your network.	(none)	192.168.25.0
Timezone	The timezone in which the Webcache will operate.	(GMT - 05:00) Eastern Time (US)	(GMT) London, Dublin, Edinburgh
(continued)			
NTP IP Addresses	The IP addresses of primary and secondary Network Time Protocol servers.	(none)	200.49.40.1
Current Date	The current day, month and year.	(none)	06 March 2001
Current Time	The current time in 24hr clock format.	(none)	12:15:45
Password	A password for the admin user name, which you must enter whenever you manage the Webcache via the Web interface or Command Line Interface. Can be up to 10 characters long, is case-sensitive and must only contain alpha-numeric characters.	(no password)	1a2b3c4d4e

(continued)

Setting	Meaning	Default	Example
Caching Mode	Choose how the Webcache is deployed within your network - either Proxy Mode, Transparent Mode or Inline Mode. Note that Proxy Mode is always enabled. You must enable Transparent Mode if you want to deploy the Webcache with the SuperStack 3 Switch 4400, 4924 or 4950. For further information see "Deploying the SuperStack 3 Switch 4400, 4924 or 4950 with the Webcache" on page 38. You must enable Transparent Mode if you want to deploy the Webcache with Cisco routers using WCCP. For further information see "Web Cache Communication Protocol (WCCP)" on page 41.	Proxy Mode	N/A
Caching Port Numbers	Up to ten TCP port numbers on which the Webcache will listen for traffic. You cannot use any of the following ports or ranges: 1, 6, 23, 123, 161, 2048, 8081-8089, 49152-65535. Ports that you use for Proxy Mode cannot also be used for Transparent Mode. 3Com recommends you use the default port number of 8080 for Proxy Mode. Port 80 is always cached in Transparent and Inline Cache modes, regardless of the other port numbers chosen.	8080 (Proxy Mode) 80 (Transparent Mode)	8080

F REPLACING AND INSTALLING CACHE STORAGE DEVICES

This chapter contains information about replacing failed cache storage devices and installing a third cache storage device in the Webcache 3000. It covers the following topics:

- Replacing a Failed Cache Storage Device
- Installing an Additional Cache Storage Device

***WARNING:** You can only replace and install Cache Storage Devices without removing power from the Webcache, if the Webcache is currently running software version 2.0 or later.*

Replacing a Failed Cache Storage Device

If a cache storage device fails in the Webcache 3000, you can remove it and return it to 3Com for replacement. A Yellow Cache Storage Status LED on the front of the Webcache indicates that a cache storage device has failed. Also the SNMP trap "Caching Disk Failed" is automatically generated when a cache storage device fails. For further information about SNMP traps, see "SNMP Traps" on page 212.

Only the Webcache 3000 has accessible cache storage devices; you cannot remove them from the Webcache 1000. If a cache storage device fails in the Webcache 1000, you should return the whole unit to 3Com.

The Webcache will continue to operate with reduced performance if at least one cache storage device is functioning normally. If all cache storage devices have failed, the Webcache automatically directs all requests to the origin server.

Removing the Failed Cache Storage Device

To remove a cache storage device from the Webcache 3000:

1. Log in to the Web interface.
2. Click *Device* on the Toolbar.
3. Select *System* > *Storage* > *Remove Disk* in the Navigation Tree. The Remove Cache Storage screen is displayed.

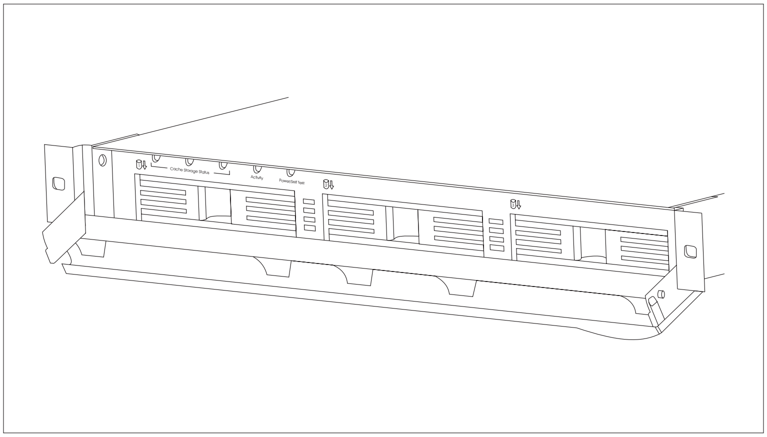
   You can also open this screen by clicking the cache storage device that you want to remove on the Device Mimic and selecting *Remove Storage* from the pop-up menu. For further information, see "Device Mimic" on page 96.
4. Select the cache storage device that you want to remove from the *Select the Cache Storage Device* list. Click *Remove*.
5. The Webcache automatically stops using the cache storage device that you have selected and prepares it for removal. You can safely remove the device from the Webcache when the Cache Storage Status LED on the front panel changes to Yellow Flashing and then to Off. For further information about LEDs, see "LEDs" on page 61.

CAUTION: *The Webcache service will be interrupted during the removal of the cache storage device and client machines may experience network problems.*

6 If you have mounted the Webcache in a rack using the supplied rack-mounting kit, you must slide the Webcache forward by approximately 1 inch, in order to fully open the front panel.

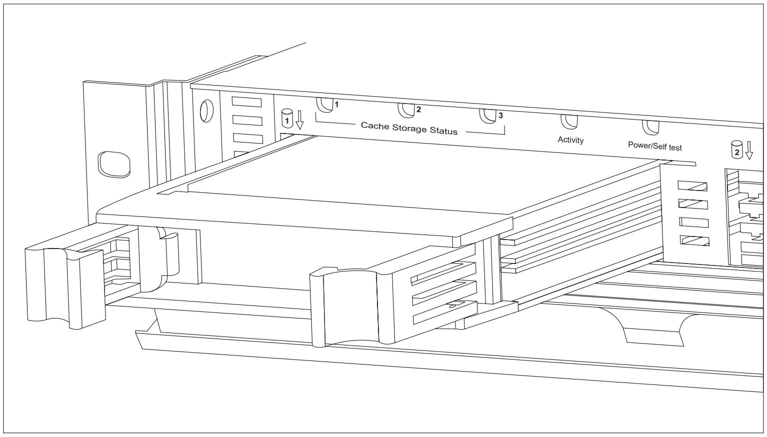
7 Open the front panel of the Webcache, as shown in Figure 37.

Figure 37 Opening the Front Panel



8 Each cache storage device is mounted in a tray. Unclip the arms at the front of the tray and pull the tray forwards out of the Webcache, as shown in Figure 38.

Figure 38 Removing a Cache Storage Device



9 Close the front panel of the Webcache.

10 Return the cache storage device to 3Com.

For further information about returning a failed cache storage device to 3Com, enter the following URL into your Web browser:

`http://knowledgebase.3com.com/division/publisher.asp?id=2.0.77094716.3290900`
(correct at time of publication)

Adding a New Cache Storage Device

You can use a new cache storage device supplied by 3Com to replace the failed device.

To add a cache storage device to the Webcache 3000:

1 If you have mounted the Webcache in a rack using the supplied rack-mounting kit, you must slide the Webcache forward by approximately 1 inch, in order to fully open the front panel.

2 Open the front panel of the Webcache, as shown in Figure 37 on page 315.

3 The new cache storage device is mounted in a tray. Insert the tray into bay 1 or 2 in the Webcache and push it forwards firmly until it stops.

4 Push in the arms on the front of the tray to click them into place.

5 Close the front panel of the Webcache.

6 Log in to the Web interface.

7 Click *Device* on the Toolbar.

8 Select *System* > *Storage* > *Add Disk* in the Navigation Tree. The Add Cache Storage screen is displayed.

You can also open this screen by clicking the cache storage device that you want to remove on the Device Mimic and selecting *Add Storage* from the pop-up menu. For further information, see "Device Mimic" on page 96.

9 Select the cache storage device that you want to add from the *Select the Cache Storage Device* list. Click *Add*.

10 The Webcache automatically starts preparing the new cache storage device for use. The Cache Storage Status LED on the front panel changes to Green Flashing whilst the device is being prepared and then to Green when it is in use. For further information about LEDs, see "LEDs" on page 61.

CAUTION: *The Webcache service will be interrupted during the addition of the cache storage device and client machines may experience network problems.*

Installing an Additional Cache Storage Device

The Webcache 3000 has two cache storage devices installed in bays 1 and 2 when you purchase it. You can install an additional cache storage device in the third bay of the Webcache 3000. You may want to do this to improve the capacity and performance of the Webcache.

Only the Webcache 3000 has accessible cache storage devices; you cannot install additional devices in the Webcache 1000.

Installing an additional cache storage device is different to replacing a failed cache storage device. A mounting tray is already installed in the third bay of the Webcache 3000. You simply need to purchase a 3Com-approved hard drive and insert it into the mounting tray in the third bay.

A list of approved hard drives can be found at:

`http://www.3com.com/sswebcache`

CAUTION: *You must purchase and install a hard drive that 3Com has approved. Your warranty will be invalidated if you install an unapproved drive.*

If your Webcache does not have a mounting tray installed in the third bay, please contact 3Com who will supply you with a mounting tray kit.

To install an additional cache storage device in the Webcache 3000:

1. If you have mounted the Webcache in a rack using the supplied rack-mounting kit, you must slide the Webcache forward by approximately 1 inch, in order to fully open the front panel.
2. Open the front panel of the Webcache, as shown in Figure 37 on page 315.
3. Unclip the arms at the front of the tray in the third bay and pull out the mounting tray.
4. Fully insert the hard drive into the mounting tray.
5. You must use the screws supplied with the Webcache to screw the hard drive into place in the mounting tray.

6. Gently push the mounting tray back into the Webcache until it stops.
7. Push in the arms on the front of the tray to click them into place.
8. Close the front panel of the Webcache.
9. Log in to the Web interface.
10. Click *Device* on the Toolbar.
11. Select *System* > *Storage* > *Add Disk* in the Navigation Tree. The Add Cache Storage screen is displayed.

    You can also open this screen by clicking the cache storage device that you want to add on the Device Mimic and selecting *Add Storage* from the pop-up menu. For further information, see "Device Mimic" on page 96.
12. Select *Cache Storage Disk 3* from the options in the *Select the Cache Storage Device* list. Click *Add*.
13. The Webcache automatically starts preparing the new cache storage device for use. The Cache Storage Status LED on the front panel changes to Green Flashing whilst the device is being prepared and then to Green when it is in use. For further information about LEDs, see "LEDs" on page 61.

CAUTION: *The Webcache service will be interrupted during the addition of the cache storage device and client machines may experience network problems. To avoid network problems you should install an additional cache storage device at a time when throughput to the Webcache is typically low.*

G CISCO WCCP COMMANDS

The Web Cache Communication Protocol (WCCP) allows the Webcache to be connected to one or more WCCP-enabled Cisco routers in your network. There are two versions of WCCP, known as WCCP V1 and WCCP V2, which require different deployment methods. In addition to configuring the Webcache, you also need to configure the Cisco routers using the Cisco Command Line Interface:

- Configuring WCCP Version 1.0
- Configuring WCCP Version 2.0

For further information about configuring the Webcache for WCCP deployment, see "Web Cache Communication Protocol (WCCP)" *on* page 41.

The information given in this Appendix is correct at the time of publication. You should consult the documentation that accompanies your Cisco router for the latest information.

Configuring WCCP Version 1.0

To configure WCCP version 1.0 on a Cisco router enter the following settings in the Cisco Command Line Interface:

```
ip wccp version 1
ip wccp web-cache
interface eth0
ip wccp web-cache redirect out
ip route-cache same-interface
exit
show ip wccp
Global WCCP information:
   Router information:
     Router Identifier:                 192.168.1.100
     Protocol Version:                  1.0
Service Identifier: web-cache
     Number of Cache Engines:           1
     Number of routers:                 1
     Total Packets Redirected:          0
     Redirect access-list:              -none-
     Total Packets Denied Redirect:     0
     Total Packets Unassigned:          0
     Group access-list:                 -none-
     Total Messages Denied to Group:    0
     Total Authentication failures:     0



show ip wccp web-cache detail
WCCP Cache-Engine information:
     IP Address:           192.168.1.253
     Protocol Version:     0.3
     State:                Usable
     Initial Hash Info:    00000000000000000000000000000000
                           00000000000000000000000000000000
     Assigned Hash Info:   FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF
                           FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF
     Hash Allotment:       256 (100.00%)
     Packets Redirected:   0
     Connect Time:         00:00:31
```

Configuring WCCP Version 2.0

The WCCP 2.0 router commands have the general form of:

```
ip wccp service-id
```

The following services are defined in the Webcache:

- service-id 0 — HTTP
- service-id 5 — FTP

Wherever you see `<service-id>` in this appendix, it needs to be replaced by one of the above service-id numbers.

Cisco routers allow the use of multicast groups and security passwords on a per service group basis. For WCCP version 2.0 deployment on the 3Com SuperStack 3 Webcache, all service groups must be configured identically. For example, if you set a password for one service group, you must set the same password for all the other service groups.

Configuring WCCP for a Service Group

To enable or disable WCCP version 2.0 for a specific service group on a Cisco router, enter the following settings in the Cisco Command Line Interface:

1 Enter:

```
configure terminal
```

2 Enter the following command:

```
[no] ip wccp <service-id> password [0-7] <passwd>
```

This enables or disables the WCCP feature with a password.

3 Enter the following command:

```
ip wccp <service-id> redirect out
```

This enables packet redirection on an outbound interface using WCCP.

This rule is applied to a specific outbound interface. It is not a global router command. It is applied only to the interfaces that are connected to the Internet/origin servers.

4 Enter the following command:

```
ip wccp redirect exclude in
```

This excludes packets received on an interface from being checked for redirection.

This rule is applied on a per interface basis and is applied to the interface connected to the caches. It prevents packets being redirected to the internet from looping back to the Webcaches.

Configuring WCCP Multicast

To enable or disable WCCP multicast on a Cisco router, enter the following settings in the Cisco Command Line Interface:

1 Enter:

```
configure terminal
```

2 Enter the following command:

```
wccp <service-id> group-address <multicast address>
```

The multicast must be between 224/8 and address 239.255.255.255.

3 Enter the following command:

```
wccp <service-id> group-listen
```

This is for the interface receiving the multicast packets.

Example Configurations

Turning on HTTP processing

This will configure the router to capture HTTP traffic on port 80 and redirect it to the Webcache.

Enter the following commands:

```
configure terminal
ip wccp <service-id>
interface ethernet0
ip wccp <service-id> redirect out
```

General

Enter the following commands:

```
configure terminal
ip wccp <service-id> group-address 224.1.1.100 password 3com
interface ethernet 0
ip wccp <service-id> redirect out
interface ethernet 1
ip wccp <service-id> group-listen
```

Cache Access List

To achieve better security, you can tell the router which IP addresses are valid addresses for a webcache attempting to register with the current router, using a standard access list. The following example shows a standard access list configuration session where the access list number is 10 for a sample host:

Enter the following commands:

```
configure terminal
access-list 10 permit host 11.1.1.1
access-list 10 permit host 11.1.1.2
access-list 10 permit host 11.1.1.3
ip wccp <service-id> group-list 10
```

Client Exclusion List

You can use WCCP access lists to disable caching for certain client machines, servers or client/server pairs. The following example shows any request coming from 10.1.1.1 or going to 12.1.1.1 will bypass the cache while all other requests will be serviced normally:

Enter the following commands:

```
configure terminal.
access-list 120 deny tcp host 10.1.1.1
access-list 120 deny tcp any host 12.1.1.1
access-list 120 permit ip any any
ip wccp <service-id> redirect-list 120
```

Monitoring WCCP

Enter the following commands:

```
configure terminal
show ip wccp
show ip wccp <service-id> detail
show ip interface
show ip wccp <service-id> view
show running-config
clear ip wccp
clear ip wccp <service-id>
```

The clear ip wccp *command clears the general WCCP statistics.*

The clear ip wccp <service-id> *command clears the statistics for a particular service-id.*

Configuring WCCP Version 2.0 Within a Single Subnet

If you are configuring a network where the Webcache and client machines reside on the same segment, special settings are required on the Cisco router to implement a WCCP solution.

Remove the **`ip wccp redirect exclude in`** command on the router interface that the Webcache is connected to.

Enter the command:

```
ip route-cache same-interface
```

on the router interface that the Webcache is connected to. Issue the command **`write run start`** to save the configuration.

Configuring the Webcache for Cache Bypass will no longer work in this configuration. Enabling Cache Bypass on the Webcache will result in a loss of web connectivity.

Enabling Cisco Express Forwarding (CEF)

Cisco's Express Forwarding (CEF) is an alternative routing technology available on the following Cisco routers (correct at time of publishing):

- Cisco 7000 series routers equipped with RSP7000
- Cisco 7200 series
- Cisco 7500 series
- Cisco 12000 series

If your router supports CEF, you may see improved routing and Webcache redirection performance by enabling CEF.

More information on CEF is available at:

http://www.cisco.com/univercd/cc/td/doc/product/software/ios120/12cgcr/switch_c/xcprt2/index.htm

and

http://www.cisco.com/univercd/cc/td/doc/product/software/ios112/ios112p/gsr/cef.htm#xtocid262644

(correct at time of publishing)

Further Information

For further information on WCCP 2.0, please refer to:

http://www.cisco.com/warp/public/732/wccp/index.html
(correct at time of publication)

H Log Formats

The Webcache can save its log files to an FTP server (see "Storing the Log Files" on page 140). The Access Logs are saved in five formats, described in "Access Log Formats" below. The format of the Filter Log is described in "Filter Log Format" on page 331.

Access Log Formats

The Webcache supports the following Access Log formats:

- Squid Log Format **(default)**

  The access logs generated by the Webcache are by default based on the standard Squid Access Log format and can be analyzed using off-the-shelf log analysis tools.

- Netscape Common Format

  The Netscape Common Format is the most basic of the Access Log formats supported by the Webcache. The information that it provides is not very detailed and it can only be used by some log analysis packages.

- Netscape Extended Format

  The Netscape Extended Format includes additional fields and is more detailed than the Netscape Common Format.

- Netscape Extended 2 Format

  The Netscape Extended Format 2 includes more fields than the Netscape Extended Format and is the most detailed of the Netscape formats.

All three Netscape format log files can be analyzed by Netscape's program Flexanlg, which is distributed with Netscape Web and Proxy Servers beginning with version 2.0.

- WebTrends Extended Log Format **(WELF)**

The Webcache supports WELF, the WebTrends Enhanced Log Format, so that you can analyze the Webcache Access Log files with WebTrends reporting tools.

3Com recommends that you select the Webtrends Extended Log Format (WELF) option and use Webtrends Log Analyzer or WebTrends Firewall Suite to analyze the access logs that the Webcache produces:

`http://www.webtrends.com`
(correct at time of publication)

For further information about configuring access logging, see "Access Logging" on page 140.

Squid Log Format

Table 16 lists the Squid logging fields.

The format of Squid log file entries is:

```
time elapsed client action/code size method url ident
hierarchy/from content
```

Table 16 Squid logging fields

Squid	Meaning
time	The client request timestamp; date and time of the client request, in seconds since January 1,1970.
elapsed	The transfer time; total transfer time in milliseconds.
client	The client host IP; the IP address of the client's host machine.
action/code	The cache result code; specifies how the cache responded to the request (HIT, MISS, ...). The proxy response status code; the HTTP response status code from proxy to client.
size	The proxy response transfer length (includes header and content length).
method	The client request HTTP method; method (GET, POST,...) from client to proxy.
url	The client request canonical URL; blanks and other characters that might not be parsed by log analysis tools are replaced by escape sequences. The escape sequence is the ASCII code number.
ident	The client authenticated user name; result of the RFC931/ident lookup of the client user name.

(continued)

Table 16 Squid logging fields (continued)

Squid	Meaning
hierarchy/from	The proxy hierarchy route; the route that the proxy used to retrieve the document. The proxy request server name.
content	The proxy response content type; content type of the document (e.g. img/gif) from server response header.

Netscape Common Format

Table 17 lists the Netscape Common Format logging fields.

The format of Netscape Common Format log file entries is:

```
host - usr [time] "req" status length
```

Table 17 Netscape Common Format logging fields

Netscape Common	Meaning
host	The client host IP; the IP address of the client’s host machine.
usr	The client authenticated user name; result of the RFC931/ident lookup of the client user name.
[time]	The client request timestamp; date and time of the client’s request.
“req“	The full HTTP client request text, minus headers; for example, GET http://www.3com.com HTTP/1.0
status	The proxy response status code; the HTTP response status code from proxy to client.
length	The proxy response transfer length; response length (bytes) from proxy to client.

Netscape Extended Format

Table 18 lists the Netscape Extended Format logging fields.

The format of Netscape Extended Format log file entries is:

```
host - usr [time] "req" status length servstat servlngth
creql sreql chdrl prspl preql srspl tts
```

Table 18 Netscape Extended Format logging fields

Netscape Extended	Meaning
host	The client host IP; the IP address of the client’s host machine.
usr	The client authenticated user name; result of the RFC931/ident lookup of the client user name.

(continued)

Table 18 Netscape Extended Format logging fields (continued)

Netscape Extended	Meaning
[time]	The client request timestamp; date and time of the client's request.
"req"	The full HTTP client request text, minus headers; for example, GET http://www.3com.com HTTP/1.0
status	The proxy response status code; the HTTP response status code from proxy to client.
length	The proxy response transfer length; response length (bytes) from proxy to client.
servstat	The server response status code; the HTTP response status code from server to proxy.
servlngth	The server response transfer length; response length (bytes) from server to proxy.
creql	The client request transfer length; request body length (bytes) from client to proxy.
sreql	The proxy request transfer length; request body length (bytes) from proxy to server.
chdrl	The client request header length; request header length (bytes) from client to proxy.
prspl	The proxy response header length; response header length (bytes) from proxy to client.
preql	The proxy request header length; request header length (bytes) from proxy to server.
srspl	The server response header length; response header length (bytes) from server to proxy.
tts	The transfer time in seconds; specifies the transfer time of the document in seconds.

Netscape Extended 2 Format

Table 19 lists the Netscape Extended 2 Format logging fields.

The format of Netscape Extended Format 2 log file entries is:

```
host - usr [time] "req" status length servstat servlngth
creql sreql chdrl prspl preql srspl tts route cs ss crc
```

Table 19 Netscape Extended 2 Format logging fields

Netscape Extended 2	Meaning
host	The client host IP; the IP address of the client's host machine.

(continued)

Table 19 Netscape Extended 2 Format logging fields (continued)

Netscape Extended 2	Meaning
usr	The client authenticated user name; result of the RFC931/ident lookup of the client user name.
[time]	The client request timestamp; date and time of the client's request.
"req"	The full HTTP client request text, minus headers; for example, GET http://www.3com.com HTTP/1.0
status	The proxy response status code; the HTTP response status code from proxy to client.
length	The proxy response transfer length; response length (bytes) from proxy to client.
servstat	The server response status code; the HTTP response status code from server to proxy.
servlngth	The server response transfer length; response length (bytes) from server to proxy.
creql	The client request transfer length; request body length (bytes) from client to proxy.
sreql	The proxy request transfer length; request body length (bytes) from proxy to server.
chdrl	The client request header length; request header length (bytes) from client to proxy.
prspl	The proxy response header length; response header length (bytes) from proxy to client.
preql	The proxy request header length; request header length (bytes) from proxy to server.
srspl	The server response header length; response header length (bytes) from server to proxy.
tts	The transfer time in seconds; specifies the transfer time of the document in seconds.
route	The proxy hierarchy route; the route that the proxy used to retrieve the document.
cs	The client finish status code; specifies whether the client request to the proxy was successfully completed (FIN) or interrupted (INTR).
ss	The proxy finish status code; specifies whether the proxy request to the server was successfully completed (FIN) or interrupted (INTR).
crc	The cache result code; specifies how the cache responded to the request (HIT, MISS, ...).

WebTrends Extended Log Format

Table 20 lists the WebTrends Extended Log Format logging fields.

The format of WebTrends Extended Log Format log file entries is:

```
id=firewall time fw pri proto duration sent rcvd src dst
dstname user op arg result ref agent cache
```

Table 20 WebTrends Extended Log Format (WELF) logging fields

WebTrends	Meaning	Examples
id	The type of record; for log files produced by the Webcache, the type will always be firewall.	id=firewall
time	Shows the date and time of the event, in terms of local time. The form of the date/time field is: time=”yyyy-mm-dd hh:mm:ss”	time=”2001-01-01 18:00:00”

fw	Identifies the webcache that generated the log record. This is represented as an IP address or a client machine name.	fw=192.168.1.253
		fw=Webcache 3000 #1

pri	The priority of the event. Legal values are:
	▪ 0 - emergency
	▪ 1 - alert
	▪ 2 - critical
	▪ 3 - error
	▪ 4 - warning
	▪ 5 - notice
	▪ 6 - information
	▪ 7 - debug
		pri=0
		pri=5

proto	The protocol used by the event.	proto=http
		proto=ftp
		proto=snmp

duration	The time that is required to perform the operation, in seconds. For example, for an FTP file transfer, this would be the amount of time used to perform the transfer.	duration=180.00
sent	The number of bytes transferred from the source to the destination.	sent=1426
rcvd	The number of bytes transferred from the destination to the source.	rcvd=1426
src	The IP address that generated the event.	src=192.168.1.253
dst	The IP address that received the event.	dst=192.168.1.254

(continued)

Table 20 WebTrends Extended Log Format (WELF) logging fields (continued)

WebTrends	Meaning	Examples

dstname	The more user-friendly version of the `dst=` field.	dstname=Webcache 3000 #1
		dstname=www.3com.com

user	The user name is logged in this field.	user=admin

op	For HTTP and FTP requests, this is the operation such as GET, POST, etc.	op=GET
		op=POST

arg	For HTTP and FTP requests, this is the URL accessed.	arg=/3com.com/logo.gif

result	For HTTP requests, this is the standard result code, such as 200 for success, 304 for returned from cache, etc.	result=200
		result=304
		result=404

ref	For incoming web records, this field contains the referring site.	ref=http://search.yahoo.com
agent	For incoming or outgoing web records, this field contains the agent (usually the browser).	agent="Microsoft Internet Explorer/6.0.2600.0000 (Windows 2000)"

cache	For outgoing web records, this field holds the proxy cache status.	cache=TCP_MISS
		cache=TCP_HIT

Filter Log Format

The Filter Log file lists all web accesses that were filtered by the Webcache. See "Using Content Filtering" on page 145 for information on Content Filtering and Table 21 below for descriptions of the Filter Log fields.

The format of Filter Log file entries is:

```
time="time" src="src" ident="ident" category="block-category"
policy="block-policy" method="method" host="hostname"
url="url"
```

Table 21 Filter Log Format logging fields

Filter Log	Meaning
time	The client request timestamp; expressed as number of seconds since January 1,1970.
src	The IP address of the web client machine that issued the request.

(continued)

Table 21 Filter Log Format logging fields (continued)

Filter Log	Meaning
ident	The client authenticated user name if per-user authentication is enabled. If per-user authentication is not enabled, this field has the value "-".
category	The filter category (one of those described in Section 3.2.2) that prevented the access, e.g. Core, Productivity… (See Appendix J for a description of the categories).
policy	Reserved for future use.
method	The HTTP method used by the client e.g. GET, POST.
host	The Hostname: field in the HTTP request. In transparent deployments this can be more useful than the destination IP address. If no Hostname was provided, this field has the value "-".
url	The destination URL.

TRACE ROUTE SYMBOLS

The Trace Route feature allows you to display the network hops from the Webcache to a device on an IP network.

A symbol may be displayed after a network hop which provides further information about that hop. The symbol may indicate systems that are unwilling to participate in a traceroute, or a problem with the system concerned.

The symbols and their meanings are shown in Table 22.

Table 22 Trace Route Symbols

Symbol	Meaning
`!H`	Host unreachable
`!N`	Network unreachable
`!P`	Protocol unreachable
`!S`	Source Route failed
`!F`	Fragmentation needed
`!X`	Communication administratively prohibited
`!N`	ICMP unreachable code N

Example

```
2.router1 (192.168.1.255) 26.027ms !H, 27.156ms!H,44.902ms !H
```

In this example, `!H` is displayed after every network hop for the system `router1`, indicating that the system is unreachable.

For further information about the Trace Route feature, see "Performing a Trace Route" on page 229 and "Tracing IP Addresses" on page 263.

J CATEGORY SET DEFINITIONS

Core Categories

The 3Com Web Site Filter groups sites in the Core Categories so that you can block individual topics. The Web Site Filter will also block entire web hosting sites (ISPs) under all core categories. This is because such sites often hold a substantial amount of core content, and change particularly rapidly making them very difficult to track at the individual web page level. If you find a hosting site blocked inappropriately at the domain level, 3Com recommends you add it to the Allow List.

Sexually Explicit

This includes:

- Sexually-oriented or erotic full or partial nudity depictions or images of sexual acts, including animals or other inanimate objects used in a sexual manner.
- Erotic stories and textual descriptions of sexual acts.
- Sexually exploitative or sexually violent text or graphics.
- Bondage, fetishes and genital piercing.
- Adult products including sex toys, CD-ROMs and videos.
- Adult services including videoconferencing, escort services and strip clubs.

Sexual health, breast cancer or sexually transmitted diseases (except in graphic examples) are not considered sexually explicit.

Drugs/Alcohol

This includes:

- Recipes, instructions or kits for manufacturing or growing illicit substances including alcohol. These include purposes other than industrial usage sites that glamorize, encourage, or instruct on the use of or masking the use of alcohol, tobacco, illegal drugs or other substances that are illegal to minors.

- Alcohol and tobacco manufacturers' commercial Web sites.
- Sites detailing how to achieve 'legal highs', glue sniffing, misuse of prescription drugs or abuse of other legal substances.
- Sites that make available alcohol, illegal drugs, or tobacco free or for a charge displaying, selling, or detailing use of drug paraphernalia.

Web sites discussing medicinal drug use, industrial hemp use, or public debate on the issue of legalizing certain drugs are not included in this Category Set. Nor are Web sites that are sponsored by a public or private agency that provides educational information on drug use.

Gambling

This includes:

- Online gambling or lottery Web sites that invite the use of real money sites. This also includes Web sites that provide phone numbers, online contacts or advice for placing wagers, participating in lotteries, or gambling real money newsgroups or sites discussing number running virtual casinos and offshore gambling ventures sports picks and betting pools.

Violence

This includes:

- Web Sites portraying, describing or advocating physical assault against humans, animals or institutions.
- Depictions of torture, mutilation, gore or horrific death.
- Web Sites advocating suicide or self-mutilation.
- Instructions, recipes or kits for making bombs or other harmful or destructive devices.
- Web sites that primarily sell guns, weapons, ammunition or poisonous substances. Furthermore, Web sites that allow online purchasing or ordering information, including lists of prices and dealer locations excessive use of profanity or obscene gesticulation.

News, historical, or press incidents that may include the above criteria (except in graphic examples) and are not blocked.

Hate Speech

This includes:

- Web sites advocating or inciting degradation or attack of specified populations or institutions based on associations such as religion, race, nationality, gender, age, disability, or sexual orientation sites which promote a political or social agenda which is supremacist in nature and exclusionary of others based on their race, religion, nationality, gender, age, disability or sexual orientation.

- Holocaust revision/denial sites.
- Coercion or recruitment for membership in a gang or cult. A gang is defined as a group whose primary activities are the commission of felonious criminal acts, which has a common name or identifying sign or symbol and whose members individually or collectively engage in criminal activity in the name of the group. A cult is defined as a group whose followers have been deceptively and manipulatively recruited and retained through undue influence such that followers' personalities and behavior are altered. Leadership is all-powerful, ideology is totalistic and the will of the individual is subordinate to the group. A cult sets itself outside of society.

News, historical, or press incidents that may include the above criteria (except in graphic examples) and are not blocked.

Productivity Categories

The 3Com Web Site Filter aims to primarily cover the 20% of web sites that generate 80% of the traffic under the productivity categories. The entire internet is simply large to filter and still perform satisfactorily.

Astrology and Mysticism

This includes:

- Online horoscopes, numerology or astrological readings.
- Tarot card readings or predictions by other people.
- Occultism, witchcraft, black arts and magic.
- Books or magazines related to astrology, zodiac, tarot cards and numerology.

Entertainment

This includes:

- Television, movies, music and video programming guides.
- Comics, movie, video or sound clips.
- Discussion forums on television, movies, music and videos.
- Online magazines and reviews on the entertainment industry.
- Circuses, theatre, variety magazines and radio.
- Jokes, comedians and any site designed to be funny or satirical.

- Celebrity fan sites.
- City Guides.

Games This includes:

- Web sites that allow a user to download or play online games.
- Tips and advice on playing computer and Internet-based games.
- Journals and magazines dedicated to game playing.
- Web sites hosting games and contests.

General News This includes:

- Online newspapers.
- Headline news sites.
- News wire services.
- Personalized news sources.

Glamour and Intimate Apparel This includes:

- Lingerie, negligee or swimwear modeling.
- Supermodel fan pages.
- Fashion, clothing and glamour magazines or catalogues.
- Beauty and cosmetics.
- Fitness models and sports celebrities.
- Modeling information and agencies.

Hobbies This includes:

- Recreational pastimes such as collecting, gardening and kit airplanes.
- Outdoor recreational activities such as hiking, camping and rock climbing.
- Web sites communicating tips or trends focused on a specific art, craft or technique.
- Online publications on a specific pastime or recreational activity.
- Online clubs, associations or forums dedicated to a hobby.

Investment

This includes:

- Web sites that provide stock quotes, stock tickers and fund rates.
- Web sites that allow stock or equity trading online.
- Investing advice or contacts for trading securities.
- Money management/investment services or firms.

Job Search

This includes:

- Sites hosting job and resume listings.
- Tips and strategies for job seekers and interviewees.
- Online job finding services.

Motor Vehicles

This includes:

- Car reviews, vehicle purchasing or sales tips and parts catalogues.
- Auto trading, photos, discussion of vehicles including motorcycles, boats, cars, trucks and RVs.
- Journals and magazines on vehicle modification, repair or customization.
- Online automotive enthusiast clubs.

Personals and Dating

This includes:

- Web sites that provide singles listings.
- Matchmaking and dating services.
- Advice for dating or relationships.
- Romance tips and suggestions.

Real Estate

This includes:

- Home, apartment, and land listings.
- Rental or relocation services.
- Tips on buying or selling a home.
- Mortgage and home loan information.
- Home improvement.
- Real estate agents and agencies.

Shopping This includes:

- Internet malls and online auctions.
- Department stores, retail stores, company catalogs online.
- Online downloadable product warehouses; specialty items for sale.
- Companies online dedicated to freebies or merchandise giveaways.

Sports This includes:

- Official team or conference Web sites.
- National, international, college, professional scores and schedules.
- Virtual sports leagues and teams.
- Sports-related online magazines or newsletters.

Travel This includes:

- Airlines and online flight booking agencies.
- Accommodation, information and weather bureaus.
- Leisure travel package listings.
- Tourist information and maps.

Usenet News This blocks access to newsgroups accessed through the http protocol.

ChatBlock This blocks access to all Web-based chat rooms.

GLOSSARY

3Com Network Supervisor The 3Com umbrella management system used to manage all of 3Com's networking solutions.

3Com Web Scheduler A Web browser plug-in that allows permitted users to schedule content preloads without administrator access to the Webcache.

10BASE-T The IEEE specification for 10 Mbps Ethernet over Category 3, 4 or 5 twisted pair cable.

100BASE-TX The IEEE specification for 100 Mbps Fast Ethernet over Category 5 twisted-pair cable.

auto-negotiation A feature on twisted pair ports that allows them to advertise their capabilities for speed, duplex and flow control. When connected to a port that also supports auto-negotiation, the link can automatically configure itself to the optimum setup.

bandwidth The information capacity, measured in bits per second, that a channel can transmit. The bandwidth of Ethernet is 10 Mbps and the bandwidth of Fast Ethernet is 100 Mbps.

baud The signalling rate of a line, that is, the number of transitions (voltage or frequency changes) made per second. Also known as *line speed*.

cache Stores copies of frequently accessed objects close to users and serves them to users when requested.

cache hit An object in the cache that can be served directly to the client machine.

cache miss An object that is not in the cache or that is in the cache but no longer valid. In both cases, the Webcache must get the object from the origin server.

client machine A computer, printer or server that is connected to a network. In this User Guide, client machine is used to describe a machine on your network which is running a Web browser such as Internet Explorer or Netscape Navigator.

content filtering The blocking or logging access to Web sites that are considered unsuitable by the administrator of a network

content preload Downloading Web pages and their contents into the Webcache before they are needed. This is typically done during times when WAN bandwidth is not fully utilized.

current Content stored in the cache can either be *current* (also known as *fresh*) or *expired* (also known as *stale*). If it is current, the content is up to date and the Webcache serves it to the client machine as a cache hit. See also fresh.

default rule The rule that is applied during content filtering if a Web site has not already been allowed ar denied by an earlier rule. The default rule can be *Allow All* or *Deny All*.

DNS Domain Name System. This system maps a numerical Internet Protocol (IP) address to a more meaningful and easy-to-remember name. When you need to access another device on your network, you enter the name of the device, instead of its IP address.

Ethernet A LAN specification developed jointly by Xerox, Intel and Digital Equipment Corporation. Ethernet networks use CSMA/CD to transmit packets at a rate of 10 Mbps over a variety of cables.

Ethernet address See *MAC address*.

expired Content stored in the cache can either be *current* (also known as *fresh*) or *expired* (also known as *stale*). If it is expired, the content is out of date and the Webcache connects to the origin Web server and retrieves the content.
See also stale.

Fast Ethernet An Ethernet system that is designed to operate at 100Mbps.

Filter Log A list of all the sites that have been content filtered by the Webcache. A limited list is stored on the Webcache which can be automatically saved to create a permanent record.

fresh Content stored in the cache can either be *fresh* (also known as *current*) or *stale* (also known as *expired*). If it is fresh, the content is up to date and the Webcache serves it to the client machine as a cache hit. See also current.

FTP File Transfer Protocol. A protocol based on TCP/IP for reliable file transfer.

full duplex A system that allows packets to be transmitted and received at the same time and, in effect, doubles the potential throughput of a link.

gateway See router.

half duplex A system that allows packets to transmitted and received, but not at the same time. Contrast with *full duplex*.

HTTP Hypertext Transfer Protocol. This is a set of rules for exchanging files (text, graphic images, sound, video, and other multimedia files) on the World Wide Web.

ICMP Internet Control Message Protocol. A message control and error-reporting protocol between a host server and a gateway to the Internet.

IETF Internet Engineering Task Force. An organization responsible for providing engineering solutions for TCP/IP networks. In the network management area, this group is responsible for the development of the SNMP protocol.

inline cache The Webcache is directly connected to a switch in your LAN via the LAN port and a WAN gateway or firewall via the WAN port. All network traffic passes through the Webcache, regardless of whether it is Web or non-Web traffic.

Intranet An Intranet is an organization wide network using Internet protocols such as web services, TCP/IP, HTTP and HTML. An Intranet is normally used for internal communication and information, and is not accessible to computers on the wider Internet.

IP Internet Protocol. IP is a layer 3 network protocol that is the standard for sending data through a network. IP is part of the TCP/IP set of protocols that describe the routing of packets to addressed devices.

IP address Internet Protocol address. A unique identifier for a device attached to a network using TCP/IP. The address is written as four octets separated with periods (full-stops), and is made up of a network section, an optional subnet section and a host section.

LAN Local Area Network. A network of client machines (such as PCs, printers, servers) and network devices (hubs and switches) that cover a relatively small geographic area (usually not larger than a floor or building). LANs are characterized by high transmission speeds over short distances (up to 1000 m).

LAN port An auto-negotiating 10BASE-T/100BASE-TX RJ-45 port which is used to connect the Webcache to the Local Area Network (LAN).

latency The delay between a web request being issued from the Web browser on a client machine and the information arriving back at the browser.

line speed See *baud*.

MRTG Multi Router Traffic Grapher. A graphing tool provided with the Webcache that enables you to monitor the Webcache's performance.

Netscape log format A standard Access Log format. Using the Netscape log format, you can analyze Webcache Access Log files with off-the-shelf log analysis tools.

NTP Network Time Protocol. This protocol is used to synchronize the time of client machines and servers with other well-known, highly accurate servers or reference time sources (such as a radio, satellite receiver or modem). It maintains a consistent Coordinated Universal Time (UTC) within your network which is far more accurate than the internal system clocks of client machines.

origin server The web server that contains the original copy of the requested information.

PAC Proxy Auto Configuration. PAC files allow you to create configuration rules that determine how Web browsers operate when the Webcache is being deployed in a Proxy cache.

parent caching Parent Caching allows you to explicitly configure a hierarchy of Webcaches within your network. Web requests from client machines that are not fulfilled by a child Webcache (cache misses) can be routed to parent Webcaches instead of the origin Web server.

PING Packet Internet or Inter-Network Gropher. This feature allows you to send out a PING request to test whether devices on an IP network are accessible and functioning correctly.

protocol A set of rules for communication between devices on a network. The rules dictate format, timing, sequencing and error control.

proxy cache The Webcache is connected to a Layer 2 switch in your LAN. The Web browser on each client machine in your network must be configured to explicitly direct its Web requests to the Webcache.

router A router is a device on your network which is used to forward IP packets to a remote destination. An alternative name for a router is a gateway.

server A computer in a network that holds the master version of a web page/object. A web request that is not served by the Webcache must go to the server across the World Wide Web. This is termed a cache miss. A web request served by the Webcache is termed a cache hit.

SNMP Simple Network Management Protocol. The current IETF standard protocol for managing devices on an TCP/IP network.

Squid log format A standard Access Log format. Using the Squid log format, you can analyze Webcache Access Log files with off-the-shelf log analysis tools.

stale Content stored in the cache can either be *fresh* (also known as *current*) or *stale* (also known as *expired*). If it is stale, the content is out of date and the Webcache connects to the origin Web server and retrieves the content.
See also expired.

subnet An IP network can be divided into sub-networks, also known as subnets. If you have a small network (less than 254 devices), you may decide not to have multiple subnets.

subnet mask A subnet mask is used to divide the device part of the IP address into two further parts. The first part identifies the subnet number. The second part identifies the device on that subnet.

TCP/IP Transmission Control Protocol/Internet Protocol. This is the name for two of the most well-known protocols developed for the interconnection of networks. Originally a UNIX standard, TCP/IP is now supported on almost all platforms, and is the protocol of the Internet.

TCP relates to the content of the data travelling through a network — ensuring that the information sent arrives in one piece when it reaches its destination. IP relates to the address of the client machine to which data is being sent, as well as the address of the destination network.

Telnet A TCP/IP application protocol that provides a virtual terminal service, letting a user log into another computer system and access a device as if the user were connected directly to the device.

trace route This feature allows you to display the network hops from the Webcache to a device on an IP network.

transparent cache The Webcache is connected to a Layer 4 device in your LAN which is capable of Redirection. The Layer 4 switch (also known as a Layer 4 redirector or Web enabled switch) automatically redirects all Web requests to the Webcache.

VLAN Virtual LAN. A group of location- and topology-independent devices that communicate as if they are on the same physical LAN.

WAN Wide Area Network. A communications network that covers a wide area. A WAN can cover a large geographic area, and may contain several LANs within it.

URL Uniform Resource Locator. The address that defines the route to a file on the web or other Internet facility.

UTC Coordinated Universal Time. This is the standard time common to every place in the world. Formerly and still widely called Greenwich Mean Time (GMT) and also World Time, UTC nominally reflects the mean solar time along the Earth's prime meridian.

WAN port On the Webcache, the WAN port is an auto-negotiating 10BASE-T/100BASE-TX RJ-45 port which is used to connect the Webcache to the network in an inline deployment environment.

WCCP Web Cache Communication Protocol. This protocol allows the Webcache to be connected to one or more WCCP-enabled Cisco routers in your network.

WELF WebTrends Extended Log Format. A proprietary Access Log format. Using WELF, you can analyze Webcache access log files with WebTrends Log Analyzer or Firewall Suite.

WPAD Web Proxy Auto-Discovery. This protocol enables the Web browser on client machines to automatically find and load proxy configuration information from a server without user intervention.

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INFORMATION TO THE USER

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- Relocate the equipment with respect to the receiver.
- Move the equipment away from the receiver.
- Plug the equipment into a different outlet so that equipment and receiver are on different branch circuits.

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How to Identify and Resolve Radio-TV Interference Problems

This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

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Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

CE STATEMENT (EUROPE)

This product complies with the European Low Voltage Directive 73/23/EEC and EMC Directive 89/336/EEC as amended by European Directive 93/68/EEC.

Warning: This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

VCCI STATEMENT

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＡ情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

BSMI STATEMENT

警告使用者：這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。